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AN ESSAY CONCERNING THE NATURE OF *ALIMENTS*,

And the CHOICE of THEM,
According to the different Conſtitutions of
HUMAN BODIES.

In which the different Effects, Advantages, and
Diſadvantages of Animal and Vegetable
Diet, are explain'd.

The THIRD EDITION.
To which are added,
PRACTICAL RULES of DIET
In the various Conſtitutions and Diſeaſes of
HUMAN BODIES.

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THE

PREFACE.

WHAT gave Occaſion to the following ESSAY *is briefly what follows; my learned and worthy Friend Dr.* Cheyne, *ſome Years ago publiſhed an Eſſay upon* Health and long Life, *in which he gave a Proof both of his Judgment and Humanity. This Book was receiv'd by the Publick with the Reſpect that was due to the Importance of its Contents; it became the Subject of Converſation, and produc'd even Sects in the dietetick Philoſophy. In ſome of thoſe ſympoſiac Diſputations amongſt my Acquaintance, being appeal'd to; I happen'd to affirm that the dietetick Part* *of Medicine depended, as much as any of the reſt, upon ſcientifick Principles: Being call'd upon to make good my Aſſertion, I compos'd the following ſhort Treatiſe, which is, properly ſpeaking, only an Eſſay or Attempt of a* Phyſiology of Aliment. *The moſt of it was wrote in a Situation where I had no Aſſiſtance, except from Extracts out of ſome imperfect Editions of the Works of the moſt learned and induſtrious* Boerhaave, *and from a very excellent Edition of his Chymiſtry by Dr.* Shaw *and Mr.* Chambers. *This I am oblig'd to ſay once for all, to ſave my ſelf the Trouble of perpetual Quotations: The Circumſtances of ill Health, and Abſence from my Books, in which I compos'd it, and the Want of Leiſure ſince to correct it ſufficiently, may be ſome Excuſe for the Want of that Accuracy which the Subject deſerves. I am likewiſe obliged to make uſe of a very common and trivial Reaſon for publiſhing it at this Time,* viz. *the Approbation of ſome*

Friends who peruſ'd it, and perſuaded me that it might be of ſome Uſe to the Publick. I can ſay but little of the Merit of the Performance, but a great deal of that of the Subject; for ſurely the Choice and Meaſure of the Materials of which the whole Body is compoſ'd, and what we take daily by Pounds, is at leaſt of as much Importance, as of what we take ſeldom, and only by Grains and Spoonfuls.

The Reader muſt not be ſurpriz'd to find the moſt common and ordinary Facts taken notice of: In Subjects of this Nature there is no room for Invention; many important Conſequences may be drawn from the Obſervation of the moſt common Things, and analogous Reaſonings from the Cauſes of them.

I believe a Reader, with as much Anatomy as a Butcher knows, and moderate Skill in Mechanicks, may underſtand the whole Eſſay, provided he goes through it at Leiſure, and with Attention: To a Perſon ſo qualify'd *many Obſervations concerning his own Conſtitution will occur, which I was not capable of making; as for the hard Words which I was oblig'd to uſe, they are either Terms of Art, or ſuch as I ſubſtituted in the place of others, that were too low and vulgar; the Reader will find moſt of them explain'd at the Beginning of the Book: And I hope an Indulgence to a few Readers will not be reckon'd an Indignity to the reſt; and that I ſhall not be ſuſpected of Affectation, where my principal Intention was Perſpicuity. In Subjects of this kind, one is oblig'd in the ſame Paragraph, to join many Particulars together in one Propoſition, becauſe the Repetition of the Subſtantive Verb would be tedious and unneceſſary. This hinders the Stile from being ſmooth, but not from being perſpicuous.*

I have laid a Plan for treating the other Parts of Diet, as Air, Reſt, and Motion after the ſame Manner; but I am oblig'd to delay the Execution of *of my Deſign till I have more Leiſure.*

I do not preſume to inſtruct the Gentlemen of my own Profeſſion; and if any of them ſhall inſtruct me better, I declare beforehand that I am very willing to be convinc'd: I will not defend any Miſtake, and at the ſame time I do not think my ſelf oblig'd to anſwer every frivolous Objection.

THE

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THE

THE
EXPLANATION
OF SOME
CHYMICAL TERMS
Uſed in the following
ESSAY.

AS the following Treatiſe is chiefly deſign'd for Perſons not bred up in the Profeſſion of Phyſick, it is neceſſary to give a general Notion of the Meaning of ſome Chymical Words that frequently occur in it.

The Principles of Natural Bodies, according to the Chymiſts, are Water, Earth, Oil, Salt, Spirit, of all which every one has ſome general Notion; but the Diverſity of the Names and Qualities of Salts and Spirits occaſions ſome Confuſion in the Minds of ſuch as are ignorant of Chymiſtry.

The Chymiſts define Salt from ſome of its Properties, to be a Body fuſible in the

Fire, congealable again by Cold into brittle Glebes, or Cryſtals, ſoluble in Water ſo as to diſappear, not malleable, and having ſomething in it which affecteth the Organs of Taſte with a Senſation of Acrimony or Sharpneſs. Of Native Salts there are,

Firſt, Sea-Salt and Sal Gemmæ, or Rock-Salt, which are of the ſame Nature. The Firſt in all Appearance being a Solution of the Second in the Water of the Ocean; theſe two are perfect Salts, fixt and immutable by any Power in Animal Bodies; for the other Salts are never found in the Urine of any Animal that ſwallows them down, but Sea-Salt is always found in the Urine of every Animal that takes it, and in no other.

Secondly, Sal Nitre, or Sal Petre, which is more eaſily diſſolv'd by Fire, and leſs eaſily by Water than any other Salt, it is cold, and affects the Tongue like a ſaltiſh Ice: It ſeems to be of a middle Nature, between Foſſil and Animal, being producible from Animal Excrements intermix'd with vegetable Salts.

Thirdly, Sal Ammoniac of two Sorts, the ancient deſcribed by *Pliny* and *Dioſcorides*, no more to be found; and the modern, which is a Compound of Foſſile, Animal, and Vegetable Salt. This Salt cools Water; it is fix'd in a gentle Fire, and ſublimes in a great one; its Taſte is quicker than that of common Salt, reſembling that of Urine.

Fourthly, Borax, a Foſſile Salt of a ſweetiſh Taſte, it promotes the Fuſion of Metals.

Fifthly, Alum, which, tho' no pure Salt, has moſt of the Properties of Salts, being ſoluble in Water, *&c.*

Salts are divided into Acid and Alkaline: Of Acid or Sour, one has a Notion from Taſte; Sourneſs being one of thoſe ſimple Ideas, which one cannot more plainly deſcribe. What being mix'd with an Acid cauſeth an Effervеſcence, is call'd an Alkali.

Effervеſcence, in the Chymical Senſe, ſignifies an inteſtine Commotion, produced by mixing two Bodies together, that lay at reſt before; attended ſometimes with a hiſſing Noiſe, Frothing, and Ebullition: For Example, let us place in the firſt Claſs, Acids, as Vinegar, Juice of Limons, Juice of Oranges, Spirit of Nitre, Spirit of Alum: In the ſecond Claſs, other ſaline Subſtances obtain'd from Animals and Vegetables, by Diſtillation, Putrefaction, Calcination, as Spirit of Urine, Spirit of Hartshorn, Salt of Tartar; becauſe the Subſtances of the ſecond Claſs being mix'd with the Subſtances of the firſt, raiſe an Effervеſcence, they are call'd Alkalis. There is a third Claſs of Subſtances, commonly call'd Abſorbents, as the various kinds of Shells, Coral, Chalk, Crabs-eyes, *&c.* Which being mix'd with the firſt Claſs, likewiſe raiſe an Effervescence, and are therefore call'd Alkalis, tho' not ſo properly; for they are not Salts, and have nothing common with the ſecond Claſs, except this Quality of fermenting with Acids.

It is obſervable, that a violent Cold, as well as Heat, may be produced by this Ebullition; for if Sal Ammoniac, or any pure volatile Alkali diſſolv'd in Water be mix'd with an Acid, an Ebullition with a great Degree of Cold will enſue, therefore, I think (with leave of the Chymiſts) Effervescence not ſo proper a Word to expreſs this inteſtine Motion. There is another Criterion of Acid and Alkali by the Change of Colour which they produce in ſome Bodies; for Example, thoſe Liquors, which being pour'd to the Syrup of Violets, turn it red, are Acids; thoſe which change it into a green Colour, are reckon'd Alkalis. Thus Oil of Vitriol turns Syrup of Violets red, and Oil of Tartar green.

The Word Alkali, comes from an Herb call'd by the *Egyptians*, Kali. This Herb they burnt to Aſhes, boil'd them in Water; and after having evaporated the Water, there remain'd at the bottom a white Salt, this they call'd Sal Kali, or Alkali. It is corroſive, producing Putrefaction in Animal Subſtances, to which it is apply'd.

Subſtances which are not perfectly Acid, but naturally turn ſo, I call Aceſcent.

Subſtances which are not perfectly Alkaline, but naturally turn ſo, I call Alkaleſcent.

Theſe are not Qualities in Bodies merely imaginary, but have very different and contrary Effects upon Human Bodies.

Salts, which are neither acid nor alkaline, are call'd Neutral; ſo are Sal Ammoniac, Sea-Salt, Sal Gemmæ, Borax, Alum, Nitre, which as long as they retain their ſaline Quality, are neither acid nor alkaline. But the Chymical Products of them all (except Sal Ammoniac) are generally Acid.

Fix'd Salts are ſuch as ſuſtain the Fire without flying away.

Volatile Salts fly away with a ſmall Heat, affecting the Noſe with an urinous Smell.

There are volatile and fix'd Alkalis.

The eſſential Salts of Plants are ſuch as ſhoot upon the Sides of the Veſſels, which contain their expreſs'd Juices.

In Diſtillations, what trickles down the Sides of the Receiver in certain unctuous Rivulets, if it will not mix with Water, it is call'd Oil, if it will mix with Water, it is call'd Spirit: Spirits are either inflammable, or not inflammable; the laſt either Acid or Alkaline. Alkaline Spirits, are ſubtile volatile Liquors, that run in Veins down the Sides of the Receiver in Diſtillations, which will not take Fire, mix with Water, and contain ſome Alkaline Salt, as Spirit of Hartſhorn. Such are obtain'd from all the Parts of Animals, from all Plants by Putrefaction, and from the pungent kind, as Muſtard, Horſe-Radiſh, &c. without it. Acid Spirits are ſubtile Liquors which come over in Diſtillations, not inflammable, miſcible with Water, ſuch are obtain'd from Vegetables diſtill'd with Water, and likewiſe from Foſſils; inflammable Spirits are ſubtile volatile Liquors which come over in Diſtillations, miſcible with Water, and wholly combuſtible; ſuch Spirits are obtainable from Plants by a previous Fermentation, and not without it. By the Spirit of a Plant or that of an Animal, we underſtand that pure elaborated Oil, which by reaſon of its extreme Volatility exhales ſpontaneouſly, in which the Odour or Smell conſiſts.

Sope is a Mixture of a fix'd Alkaline Salt and Oil, in common Uſe its Virtues are cleanſing, penetrating, attenuating and reſolving. Any Mixture of any oily Subſtance with Salt may be call'd a Sope.

Bodies of this Nature are call'd Saponaceous.

INTRODUCTION.

HE who would skilfully treat of the Nature and Choice of different ſorts of Aliment, ought to draw his Obſervations from the following Particulars. *Firſt*, From the Alterations which the Aliment undergoes in its Paſſage into the Blood. *Secondly*, From the Alteration it undergoes during its Circulation with the Blood. *Thirdly*, From the Nature and moſt ſimple Analyſis of Vegetable Subſtances. *Fourthly*, From the Nature and moſt ſimple Analyſis of Animal Subſtances. *Fifthly*, He ought to treat of the Effects of different ſorts of Alimentary Subſtances upon the Fluids and Solids of a Human Body.

Sixthly, Of the different Intentions to be purſued in the Choice of Aliment in different Conſtitutions. Tho' I have neither Time, Ability, nor Obſervations ſufficient to handle thoſe Particulars ſo fully as they deſerve, I hope at leaſt to give a Specimen how they ought to be treated.

This is agreeable to the Doctrine of *Hippocrates*, who tells you in his firſt Book of Diet, that to write duly upon it, one muſt underſtand the Nature of Aliment, and of the Perſon it is given to.

For the Eaſe of the Reader I have ſet down every thing in diſtinct Propoſitions, with Inferences and Obſervations; the firſt in *Roman*, the other in common Numbers.

AN
ESSAY
CONCERNING
The Nature of Aliments, and the Choice of them, according to the different Conſtitutions of Human Bodies.

CHAP. I.

Obſervations drawn from the Alterations which the Aliment undergoes in its paſſage into the Blood.

PROP. I.

MASTICATION * is a very neceſſary Preparation of ſolid Aliment, without which there can be no good Digeſtion.

---

* *Chewing.*

By Chewing, ſolid Aliment is divided into ſmall Parts; in a human Body, there is no other Inſtrument to perform this Action, but the Teeth. By the Action of Chewing, the Spittle and Mucus are ſqueez'd from the Glands, and mix'd with the Aliment, which Action if it be long continued, will turn the Aliment into a ſort of Chyle. The Spittle is an active Liquor, immediately deriv'd from the arterial Blood. It is * ſaponaceous, as appears by its frothing, and likewiſe by Diſtillation, and conſequently is attenuating, reſolving, penetrating, and cleanſing. After long Abſtinence, it is extremely ſharp, and copious; it ferments with the juices of Vegetables, and conſequently diſpoſeth them to be chang'd into inflamable Spirits; it diſcovereth its Virtues in ſeveral Chirurgical Uſes. Beſides, in the Action of Chewing, the Mucus mixeth with the

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* *Soapy. Vide* Explanation of the Chymical Terms.

Aliment: The Mucus is an Humour different from the Spittle; and the great Quantity of Air which it contains, helps to diſſolve the Aliment. The neceſſity of Spittle to diſſolve the Aliment, appears from the contrivance of Nature in making * the ſalivary Ducts of Animals, which ruminate or chew the Cud, extremely open. Such Animals as ſwallow their Aliment without Chewing, want ſalivary Glands; and Birds have them placed in their Maw. There are Inſtances of Men who ſwallow'd their Meat whole, but ruminated or chew'd the Cud afterwards. Rumination ſeems to be given to Animals to enable them at once to lay up a great ſtore of Food and afterwards to chew it. And Animals ruminate more upon Hay than Graſs, the Food being harder. From all which Obſervations it appears, that the Solution of the Aliment by Maſtication is very neceſſary;

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* *The Canals which ſeparate the Spittle.*

ry; and that without it the Aliment could not be duly diſpoſed for the other Changes which it receives as it paſſeth through the * Alimentary Duct.

1. A great loſs of Spittle cauſeth a decay of Appetite. This has been confirm'd by Experience in ſeveral, who have made it their conſtant Cuſtom to chew Maſtick; chewing and ſmoking of Tobacco is only proper for phlegmatick People.

2. The Humour of Salivation is not properly Spittle, but putrified Blood.

3. The Depravation of the Inſtruments of Maſtication, by a paralytical Diſpoſition, or by the want of Teeth, as in old Men and Infants, is a natural Indication of a liquid Diet, as of Milk and Broths, and even ſuch of them as take Solids ought to chew in order to make an Expreſſion of the Spittle.

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* *The whole Paſſage from the Mouth to the* Anus.

PROP. II.

The Change which is made of the Aliment in the Stomach is effected by * Attrition of the ſolid Parts, or inward Coat of the Stomach, and the Action of a diſſolvent Liquor aſſiſted with Heat.

The Liquor in the Stomach is a Compound of that which is ſeparated from its inward Coat; of the Spittle, which is almoſt continually ſwallow'd, and the Liquor which diſtills from the Gullet. By the help of this Liquor, and the conſtant Attrition of the ſolid Parts, the Aliment is diſſolv'd by an Operation reſembling that of making an Emulſion; in which Operation the Oily parts of Nuts and Seeds being gently ground in a marble Mortar, and gradually mix'd with ſome watery Liquor, are diſſolv'd into a ſweet, thick, turbid,

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* *Rubbing, Grinding.*

milky Liquor, reſembling the Chyle in an Animal Body. That the Stomach in Animals grinds the Subſtances which it receives, is evident from the Diſſection of Animals, which have ſwallow'd Metals, which have been found poliſh'd on the ſide next the Stomach. Birds being without Teeth to chew their Aliment, have ſtrong and nervous Stomachs, to make this Attrition the ſtronger; and this motion in them hath been both ſeen and heard. The Rugæ or Plies of the inward Coat of the Stomach, contribute to the detaining the Aliment in the Stomach. The Heat in Land Animals aſſiſts likewiſe in the Solution of the Aliment, but not much; for Fiſhes have a ſtrong Digeſtion without it, tho' by the trial of the Thermoſcope, they have more heat than the Element which they ſwim in. It has been ſhew'd before that the Spittle is a great Diſſolvent, and there is a great quantity of it in the Stomach, being ſwallow'd conſtantly, at leaſt in Sleep. He who eats a Pound of Bread ſwallows at leaſt as much Spittle as Bread. This Liquor of the Stomach in a ſound State is not Acid, for it has been found by Experiments, that Pearls have paſs'd through Cocks and Hens undiſſolv'd.

1. The Liquor of the Stomach, which with faſting grows extremely ſharp, and the quick Senſation of the inward villous Coat of the Stomach, ſeem to be the cauſe of the Senſe of Hunger.

2. Such as have, by the uſe of ſpirituous Liquors, weaken'd and deſtroy'd ſome of the ſolid parts of the Stomach, can neither recover a good Appetite nor right Digeſtion; for this inward villous Coat when deſtroy'd cannot be reſtor'd.

3. This Liquor of the Stomach may (by reaſon of ſome ſaline Acrimony) acquire ſome determined Quality, and affect human Creatures with

Appetites of other Animals of unuſual things, which in that caſe they can take without hurt; or it may likewiſe occaſion an exorbitant Appetite of uſual things, which they will take in ſuch quantities till they vomit them up like Dogs, from whence it is call'd Canine; in the firſt caſe the Organs of Taſte are vitiated; both Diſeaſes are cur'd by Diet, oppoſite to this Acrimony, whether Alkaline, Acid or * Muriatick.

4. Thirſt and Hunger denote the State of the Spittle, and Liquor of the Stomach. Thirſt is the ſign of an Acrimony commonly † Alkaleſcent or Muriatick.

5. A paralytical Diſpoſition of the Nerves of the Stomach, a deprav'd Condition of the Liquor of the Stomach, but chiefly ſomething viſcous, fat, and oily remaining there, deſtroys the Senſation of Hunger.

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* *Briny.*

† *See* Explanation of the Chymical Terms.

6. The Action of the Stomach is totally ſtopp'd by too great Repletion, in which caſe both the Orifices of the Stomach by a neceſſary Mechaniſm cloſe, and neither will admit nor expel any thing. Conſequently Relaxing, as by warm Water, is the only proper Expedient.

The Signs of the Functions of the Stomach being deprav'd, are Pains in the Stomach many Hours after Repaſt, * Eructations either with the Taſte of the Aliment, Acid, Nidoroſe, or Fœtid, reſembling the Taſte of rotten Eggs; Inflations, or the Senſation of Fulneſs; Sickneſs, Hickup, Vomiting, a Fluſhing in the Countenance, Foulneſs of the Tongue. In general, whatever be the State of the Tongue, the ſame is that of the inward Coat of the Stomach. When the Taſte of the Mouth is bitter, it is a Sign of a Redundance of a bilious Alkali, and demands a quite

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* *Belchings.*

different Diet from the caſe of Acidity or Sourneſs.

PROP. III.

By Digeſtion in the Alimentary Duct the ſpecifick Difference of all Subſtances is aboliſh'd, and the whole Action reſembles Putrefaction.

Digeſtion is a Fermentation begun, becauſe there are all the Requiſites of ſuch a Fermentation, Heat, Air and Motion; but it is not a compleat Fermentation, becauſe that requires a greater time than the Continuance of the Aliment in the Stomach. Vegetable Putrefaction reſembles very much Animal Digeſtion. Vegetable Putrefaction is produced by throwing green juicy Vegetables in a Heap in open warm Air, and preſſing them together, by which all Vegetables acquire, *Firſt*, A Heat equal to that of a Human Body. *Secondly*,

Secondly, A putrid ſtercoraceous Taſte and Odour, in Taſte reſembling putrid Fleſh, and in Smell human Fœces. This putrid Matter being diſtill'd, affords, *Firſt*, A Water impregnated with an urinous Spirit, like that obtainable from Animal Subſtances, which Water is ſeparable into Elementary Water, and a volatile Animal Salt. *Secondly*, A volatile oily Alkaline Salt. *Thirdly*, A volatile thick Oil. *Fourthly*, The remainder being calcin'd affords no fixt Salt; in ſhort, every thing happens as if the Subject had not been Vegetable, but Animal. Putrefaction utterly deſtroys the ſpecifick Difference of one Vegetable from another, converting them into a pulpy Subſtance of an Animal Nature: Making the ſame Alteration very near, as if the Vegetable had gone through the Body of a ſound Animal; for tho' ſuch an Animal ſhould entirely live upon Acids, no part of its Body affords any acid fix'd Salt. * This is ſo far true, that even the Herbs taken out of the *Omaſus* of ruminating Animals afford the ſame Contents as putrified Vegetables. But tho' this Action of Putrefaction comes the neareſt to Animal Digeſtion, it ſo far differs from it, that the Salts and Oils are only detain'd in the Animal Body ſo long as they remain benign and friendly to it; but as ſoon as they putrify entirely, are either thrown off, or muſt produce mortal Diſtempers.

PROP. IV.

The Gall is the principal Diſſolvent of the Aliment, and when it is peccant or deficient, there can be no right Digeſtion.

The Bile is of two ſorts, the Cyſtick or that contain'd in the Gall-Bladder, which is a ſort of Repoſitory for the Gall, and the Hepatick or what flows immediately from the Liver. The Cyſtick Gall is thick and intenſely bitter, ſo that one Drop of it will make a whole Pint of Water bitter. The Hepatick Gall is more fluid and not ſo bitter. There is no other bitter Humour in a Human Body, beſides Gall, except the Wax of the Ear. The Gall is not a perfect Alkali, for it does not ferment with an Acid, but it is Alkaleſcent, entirely oppoſite to Aceſcents, and ſoon corruptible, and convertible into a Corroſive Alkali. It is a ſaponaceous Subſtance, being compos'd of an Alkaline Salt, Oil, and Water, all which can be extracted from it. The Bile, like Soap, takes out Spots from Wool or Silk, and the Painters uſe it to mix their Colours; by this ſaponaceous Quality, it mixeth the oily and watery Parts of the Aliment together. But tho' the Bile be an Oil, it is not combuſtible till dry. Theſe

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* *Vide* Philoſophical Tranſactions.

Qualities make it a moſt powerful and proper Diſſolvent, which appears by Experience. The Milk in the Stomach of Calves, which is coagulated by the Runnet, is again diſſolv'd, and render'd fluid by the Gall in the *Duodenum*. Voracious Animals, and ſuch as do not chew, have a great quantity of Gall, and ſome of them have the Biliary Duct inſerted into the *Pylorus*. It is likewiſe the chief Inſtrument (by its Irritation) of the periſtaltick Motion of the Guts. Such as have the Bile peccant or deficient are reliev'd by Bitters, which are a ſort of ſubſidiary Gall. The learned *Boerhaave* has found the Gall of an Eel, which is moſt intenſely bitter, a moſt effectual Remedy in ſuch Caſes. The common Symptoms of the Excretion of the Bile being vitiated, are a yellowiſh Colour of the Skin, white hard Fœces, a Loſs of Appetite, a lixivial Urine.

PROP. V.

The Bile is ſo acrid, that of itſelf it could not be admitted into the Lacteal Veſſels. Therefore Nature has furniſh'd another Humour, *viz.* the pancreatick Juice to temper its Bitterneſs and Acrimony, after it has done its Office.

The *Pancreas* is a large ſalivary Gland ſeparating about a Pound of an Humour like Spittle, in twelve Hours. It is probable that this Humour tempers the Acrimony of the Gall, becauſe the Bile mix'd with Spittle loſeth its Bitterneſs in time, and even Wormwood eat with Bread will do ſo, becauſe it is mix'd with a great Quantity of Spittle. The pancreatick Juice likewiſe mixeth the Parts of the Aliment rendring the Chyle homogeneous. When the Bile is not ſeparated in the Liver the Fœces are white, but this is not occaſion'd ſion'd by the Mixture of the pancreatick Juice.

PROP. VI.

* Acrimony and Tenacity are the two Qualities in what we take inwardly moſt to be avoided.

The papillous inward Coat of the Inteſtines is extremely ſenſible, and when the Acrimony is ſo great as to affect the ſolid Parts, the Senſation of Pain is intolerable. The † periſtaltick Motion of the Guts, and the continual Expreſſion of the Fluids, will not ſuffer the leaſt Matter to be apply'd to one Point the leaſt inſtant of Time; for the ſmalleſt quantity of Turpentine or Pitch will ſtick to the Fingers, but not to the Guts. But this Motion in ſome Human Creatures may be weak in reſpect to the Viſcidity of what is taken ſo as not to be able to * propell it, the conſequence of which is dangerous, and perhaps fatal to the Life of the Creature. Subſtances hard, cannot be diſſolv'd, but they will paſs; but ſuch, whoſe Tenacity exceeds the Powers of Digeſtion, will neither paſs nor be converted into Aliment. Beſides, the Mouths of the ‡ Lacteals may permit Aliment too acrimonious, or not ſufficiently attenuated, to enter in People of lax Conſtitutions, whereas their Sphincters will ſhut againſt them in ſuch as have ſtrong Fibres. The Mouths of the Lacteals may be ſhut up by a viſcid † *Mucus*, in which caſe the Chyle paſſeth by Stool, and the Perſon falleth into an ‖ Atrophy.

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* *Sharpneſs and Glueneſs.*

† *Alternate Motion of Contraction and Dilatation, commonly tending downwards.*

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* *Drive forwards.*

‡ *Veſſels which carry the Chyle through the Meſentery.*

† *Snot.*

‖ *Decay of Fleſh.*

1. Fat or Oil is neceſſary, as for Animal Motion, ſo likewiſe for this periſtaltick Motion of the Inteſtines; and lean People often ſuffer for want of it, as fat People may by Obſtruction of the Veſſels. The Fat will melt by ſtrong Motion, as has been found in Horſes by hard running.

2. This periſtaltick Motion, or repeated Changes of Contraction and Dilatation, is not in the lower Guts, elſe one would have a continual needing to go to ſtool. Wind and Diſtention of the Bowels are Signs of a bad Digeſtion in the Inteſtines, (for in dead Animals, when there is no Digeſtion at all, the Diſtention is in the greateſt Extremity) ſo likewiſe are Diarrhœas, which proceed from Acrimony, Laxity of the Bowels, or Obſtruction of the Lacteals.

P R O P. VII.

The Mechaniſm of Nature in converting our Aliment into Animal Subſtances conſiſts chiefly in two Things. *Firſt*, In mixing conſtantly with it Animal Juices already prepar'd. *Secondly*, In the Action of the ſolid Parts as it were churning them together. This is evident, if we conſider firſt the vaſt quantity of *Saliva* mix'd with the Aliment in chewing: He that eats a Pound of Bread mixeth it very near with as much Spittle, and this ſeparated from Glands that weigh only about four Ounces. Afterwards the ſame Aliment is mix'd with the Liquor of the Stomach, the Bile and pancreatick Juice, and if we compute the quantity of Bile and Pancreatick, from the Weight of theſe *Viſcera* in reſpect of the ſalivary Glands, we ſhall find ſtill a vaſtly greater quantity of theſe Animal Juices mix'd with the Aliment; this is not all, for when the Chyle paſſeth through the * Meſentery, it is mix'd with the Lymph (which is the moſt ſpirituous and elaborated Part of the Blood) from its Glands: So that the Juices of an Animal Body are as it were † cohobated, being excreted and admitted again into the Blood with the freſh Aliment; all the while the ſolid Parts act upon the Mixture of Aliment and Animal Juices, ſo as to make the Mixture more intimate and compleat. Beſides, none of theſe Animal Juices, except the Liquor of the Inteſtines, are mix'd with the Fœces of an Animal, which in a ſound State are hard: So that one may compute, that a Pound of Bread before it enters the Blood, is mix'd perhaps with four

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* *A Membranous part in the Lower Belly, to which the Guts are connected.*

† *New diſtill'd.*

times the quantity of Animal Juices. The ſame Oeconomy is obſerv'd in the Circulation of the Chyle with the Blood, by mixing it intimately with the Parts of the Fluid to which it is to be aſſimilated.

1. From whence it follows, that an Animal, whoſe Juices are unſound or ſolid Parts weak, can never be duly nouriſh'd; for unſound Juices can never duly repair the Fluids and Solids of an Animal Body, and without a due Action of the ſolid Parts, they never can be well mix'd. The Stomach, the Inteſtines, the Muſcles of the lower Belly, all act upon the Aliment; beſides, the Chyle is not ſuck'd but ſqueez'd into the Mouths of the Lacteals by the Action of the Fibres of the Guts: The Mouths of the Lacteals are open'd by the inteſtinal Tube, affecting a ſtraight inſtead of a ſpiral Cylinder; therefore it is plain that the Chyle muſt be peccant in Quantity or Quality when theſe

Actions and Organs are too weak; and whatever ſtrengthens the ſolid Parts muſt help the Digeſtion.

2. Diarrhœas and ſtrong Purgations muſt ſpoil the firſt Digeſtion, becauſe of the great Quantities of Animal Liquids which they expell out of the Body; a vaſt quantity and variety of Animal Liquors are carried off by Purging: Air, Spittle, *Mucus*, all the Liquors that are ſeparated in the Glands of the Alimentary Duct, both ſorts of Bile, the pancreatick Juice, Lymph, and ſometimes Blood, computing the quantity of theſe Secretions, makes it plain that the whole Juices may be carried off by Purging; and when thoſe Liquors are expell'd out of the Body, which by their mixture convert the Aliment into an Animal Liquid, this cannot ſo well be perform'd.

3. The periſtaltick Motion of the Inteſtines is the laſt that ceaſeth in an Animal Body, for it remains af-

ter the Motion of the Heart is ceas'd. By the Entry of the Chyle and Air into the Blood, by the Lacteals, the Animal may again revive.

The Obſtruction of the Glands of the Meſentery is a great Impediment to Nutrition, for the Lymph in thoſe Glands is a neceſſary Conſtituent of the Aliment before it mixeth with the Blood; and for the ſame Reaſon young Animals are moſt and beſt nouriſh'd, for the Meſenterick Glands are largeſt in the vigour of Youth; in old Age they vaniſh, and are liable to Obſtructions: Therefore ſcrophulous Perſons can never be duly nouriſh'd; for ſuch as have Tumors in the Parotides often have them in the Pancreas and Meſentery.

4. In tabid Perſons Milk is the beſt Reſtorative, for it is Chyle already prepar'd; the Aliment paſſeth very quick into the Paps of any Animal that gives Milk; for if a Nurſe after being ſuck'd dry eats Broth, the

Infant will ſuck the Broth almoſt unalter'd.

5. The Chyle by reaſon of the Smoothneſs of its Particles is white, it grows more gray in the Thoracick Duct, where it ſtill retains the Flavour of the Aliment.

6. Animals, which take a large quantity of Aliment by the Mouth, may be leſs nouriſh'd than thoſe that take a ſmaller; for according to the Force of the * Chylopoetick Organs, a larger or leſs quantity of Chyle may be extracted from the ſame quantity of Food.

Aſtriction of the Belly is commonly a ſign of ſtrong Chylopoetick Organs.

PROP. VIII.

The moſt ſubtile part of the Chyle paſſeth immediately into the Blood by the † abſorbent Veſſels of the Guts, which

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* *Which makes Chyle.* † *Which ſuck in.*

which diſcharge themſelves into the Meſaraick Veins; their Largeneſs and Number demonſtrate this, for they are numerous and vaſtly larger than their correſpondent Arteries; beſides, wherever there are * Emiſſaries, there are abſorbent Veſſels, *ex. gr.* in the Skin, by the abſorbent Veſſels of which Mercury will paſs into the Blood.

Birds, which have ſtrong and large Breaſts, ſmall Bellies, and their Ribs upon their Backs, have no Lacteals nor † Thoracick Duct, and their Aliment paſſeth immediately into the Meſaraick Veins. If one conſiders the Capacity of the Thoracick Duct, and the Slowneſs of the Paſſage of the Aliment by the Lacteals through it, and at the ſame time the great quantity of ſome Liquors, as of Chalybeat Water, which in ſome paſs in a ſmall time by Urine; by an eaſy

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* *Veſſels which throw out a Liquid.*

† *A Canal through which the Chyle paſſeth from the Lacteals into the Blood.*

Calculation he will be able to demonſtrate that ſuch a quantity could not paſs into the Blood by the Thoracick Duct in ſo ſhort a time.

Therefore when the Intention is to give an immediate Refreſhment to the Spirits, as after great Abſtinence and Fatigue, thin or liquid Aliment is the propereſt, and for the ſame reaſon Chalybeat Waters ſeem to be a proper Remedy in Hypochondriacal Caſes; their ſubtle and divided Particles are taken immediately into the Meſaraick Veſſels, and carried ſtraight into the Liver and Spleen.

CHAP. II.

Obſervations drawn from the Circulation of the Chyle with the Blood.

PROP. I.

THE Chyle of it ſelf cannot paſs through the ſmalleſt Veſſels (for

(for it neither will paſs by Urine nor Sweat) therefore it cannot nouriſh the Animal, till it is converted into Blood; and it is converted into Blood by the Mechaniſm of Nature above deſcrib'd, *viz.* by intimately mixing it with the Particles of the Liquor, to which it is to be aſſimilated, as will appear by what follows.

PROP. II.

The Lungs are the firſt and chief Inſtrument of * Sanguification.

The Chyle firſt mixeth with the Blood, in the Subclavian Vein, and enters with it into the Heart, where it is very imperfectly mix'd, there being no Mechaniſm nor Fermentation by extraordinary Heat, *&c.* to convert it immediately into Blood, which is firſt effected by the Lungs. The Windpipe divides it ſelf into a great number of Branches called Bronchia, theſe end in ſmall Air-Bladders dilatable and contractible, capable to be inflated by the Admiſſion of Air, and to ſubſide at the Expulſion of it. The Pulmonary Artery and Vein paſs along the Surfaces of theſe Air-Bladders in an infinite number of Ramifications. A great number of thoſe Air-Bladders form what we call Lobuli, which hang upon the Bronchia, like Bunches of Grapes upon a Stalk. Theſe Lobuli conſtitute the Lobes, and the Lobes the Lungs. Let us ſee what effect an Engine ſo contriv'd will have upon the crude mixture of Blood and Chyle: firſt, as the Blood and Chyle paſs together through the * Ramifications of the Pulmonary Artery, they will be ſtill more perfectly mix'd; a red Liquor and a white Liquor, paſſing only through one Tube, will both retain their original Colours; but if this

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* *Making of Blood.*

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* *Branchings.*

Pipe is divided into Branches, and theſe again ſubdivided, the red and white Liquors, as they paſs through the Ramifications, will be more intimately mix'd, and both Colours will be blended together; the more Ramifications, the Mixture will be the more perfect; but this is not all, for as this Mixture of Blood and Chyle paſſeth through the Arterial Tube, it is preſs'd by two contrary Forces, that of the Heart driving it forward againſt the ſides of the Tube, and the Elaſtick Force of the Air preſſing it on the oppoſite ſide of thoſe Air-Bladders; along the Surface of which (as was ſaid before) this Arterial Tube creeps. By thoſe two oppoſite Forces, the parts of the Liquor are compreſs'd together, and as it were churn'd, and more intimately mix'd. Moreover by the alternate Motion of thoſe Air-Bladders, whoſe Surfaces are by turns freed from mutual Contact, and by a ſudden Subſidence meet again by the ingreſs and egreſs of the Air; the Liquor is ſtill farther attenuated, diſſolv'd, and chang'd into a * homogeneous Fluid.

1. The Force of the Air upon the Pulmonary Artery is but ſmall, in reſpect of that of the Heart, but it is ſtill ſomething; and whatever the effect of it be, it increaſeth, and diminiſheth with the Gravity of the Air, to which the † Elaſticity is proportional.

As to the admittance of the weighty and elaſtick Parts of the Air into the Blood, through the Coats of the Veſſels, it ſeems contrary to Experiments upon dead Bodies. The ſpumous and florid ſtate, which the Blood acquires in paſſing through the Lungs, is eaſily accounted for, from its own Elaſticity, and the violent Motion before deſcrib'd; the Aerial Particles in the Blood and Chyle expanding themſelves. That the Air in the Blood-

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* *Of one kind.* † *Spring.*

Veſſels of live Bodies has a Communication with the outward Air, I think ſeems plain from the Experiments of human Creatures being able to bear Air of much greater Denſity in diving, and of much leſs upon the tops of Mountains, provided the Changes be made gradually; otherwiſe the Air within the Veſſels being of a leſs Denſity, the outward Air would preſs their ſides together, and being of a greater Denſity, would expand them ſo as to endanger the Life of the Animal *.

1. As much Blood paſſeth through the Lungs, as through all the reſt of the Body: The Circulation is quicker, and Heat greater, and their Texture is extremely delicate; upon all which Accounts they are extremely ſenſible of any Force either from the too violent Motion or Acrimony of the Blood.

2. Since the Lungs are the firſt and chief Inſtrument of Sanguification,

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* *See the Eſſay concerning* the Effects of Air on human Bodies; *printed for* Jacob Tonſon.

tion, the Animal that has that Organ faulty, can never be duly nouriſh'd, nor have the Vital Juices, (which are all deriv'd from the Blood) in a good State; and this is true, underſtanding the Lungs only as an Inſtrument of Digeſtion, and abſtracting from an acrid and purulent Matter, that mixeth with the Blood in ſuch as have their Lungs ulcerated; therefore ſuch as have a faulty Circulation through the Lungs, ought to eat very little at a time, becauſe the Increaſe of the quantity of freſh Chyle muſt make that Circulation ſtill more uneaſy; which indeed is the Caſe of Conſumptive and ſome Aſthmatick Perſons, and accounts for the Symptoms they are troubled with after eating: Therefore the great Rule of Diet for Conſumptive People, and upon which the whole Cure depends, is taking their Aliment in ſmall quantities at a time. It happens very often unfortunately for Aſthmatick

Perſons that they have voracious Appetites, and conſequently for want of a right Sanguification are often * Leucophlegmatick.

3. The Choice as well as Quantity of Diet, is of great Importance to ſuch as have weak Lungs, for it was obſerv'd † that the Chyle in the Thoracick Duct retain'd the original Taſte of the Aliment, which not being yet converted into Blood, and intirely ſubdued by Circulation, muſt operate upon the Lungs into which it enters in this Condition, according to its original Qualities. The Texture of the Lungs is extremely delicate, and beſides, being the chief Inſtrument of Sanguification, and acting ſtrongly upon the Chyle to bring it to an Animal Fluid, muſt be reacted upon as ſtrongly.

4. Good Air aſſiſts the Digeſtion, as it is an Inſtrument of Sanguifica-

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* *Pale and phlegmatick, bloated.*

† Chap. I. Prop. VII. 5.

tion in the Lungs. It is known by Experience, that People both loſe and recover their Appetites in different kinds of Air.

PROP. III.

The Chyle is not perfectly aſſimilated into Blood by its Circulation through the Lungs; for it is known by Experiments of Blood-letting, that ſeveral Parts of it remain unmix'd with the Blood, ſwimming a-top like an oily Subſtance, even eight Hours after repaſt; and no doubt this Digeſtion, as well as that through the Alimentary Duct, is different in different Subjects.

PROP. IV.

After the Chyle has paſs'd through the Lungs, Nature continues her uſual Mechaniſm, to convert it into Animal Subſtances, during its Circulation with the Blood, *viz.* by intimately mixing the Parts of the Aliment,

ment, with thoſe of the Animal Juices, by the Action of the ſolid Parts.

The Mixture of Blood and Chyle, after its Circulation through the Lungs, being brought back into the left Ventricle of the Heart, is drove again by the Heart into the * Aorta, through the whole Arterial Syſtem; every Particle of the Body receives ſome Branch from the Aorta, except ſome of the ſolid Parts of the Liver. The Arteries are elaſtick Tubes, endued with a contractile Force, by which they ſqueeze and drive the Blood ſtill forward, it being hinder'd from going backward by the Valves of the Heart. They are † conical Veſſels, with their Baſes towards the Heart; and as they paſs on, their Diameters grow ſtill leſs and leſs: Conſequently the Celerity of the Motion diminiſhes by the Increaſe of the Friction of the Fluid againſt the ſides

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* *The great Artery, which proceeds from the left Ventricle of the Heart, and carries the Blood through the Body.*

† *Tapering, diminiſhing by degrees.*

THE

CONTNENTS.

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AS the following Treatiſe is chiefly deſign'd for Perſons not bred up in the Profeſſion of Phyſick, it is neceſſary to give a general Notion of the Meaning of ſome Chymical Words that frequently occur in it.

The Principles of Natural Bodies, according to the Chymiſts, are Water, Earth, Oil, Salt, Spirit, of all which every one has ſome general Notion; but the Diverſity of the Names and Qualities of Salts and Spirits occaſions ſome Confuſion in the Minds of ſuch as are ignorant of Chymiſtry.

The Chymiſts define Salt from ſome of its Properties, to be a Body fuſible in the

Fire, congealable again by Cold into brittle Glebes, or Cryſtals, ſoluble in Water ſo as to diſappear, not malleable, and having ſomething in it which affecteth the Organs of Taſte with a Senſation of Acrimony or Sharpneſs. Of Native Salts there are,

Firſt, Sea-Salt and Sal Gemmæ, or Rock-Salt, which are of the ſame Nature. The Firſt in all Appearance being a Solution of the Second in the Water of the Ocean; theſe two are perfect Salts, fixt and immutable by any Power in Animal Bodies; for the other Salts are never found in the Urine of any Animal that ſwallows them down, but Sea-Salt is always found in the Urine of every Animal that takes it, and in no other.

Secondly, Sal Nitre, or Sal Petre, which is more eaſily diſſolv'd by Fire, and leſs eaſily by Water than any other Salt, it is cold, and affects the Tongue like a ſaltiſh Ice: It ſeems to be of a middle Nature, between Foſſil and Animal, being producible from Animal Excrements intermix'd with vegetable Salts.

Thirdly, Sal Ammoniac of two Sorts, the ancient deſcribed by *Pliny* and *Dioſcorides*, no more to be found; and the modern, which is a Compound of Foſſile, Animal, and Vegetable Salt. This Salt cools Water; it is fix'd in a gentle Fire, and ſublimes in a great one; its Taſte is quicker than that of common Salt, reſembling that of Urine. *Fourthly*,

Fourthly, Borax, a Foſſile Salt of a ſweetiſh Taſte, it promotes the Fuſion of Metals.

Fifthly, Alum, which, tho' no pure Salt, has moſt of the Properties of Salts, being ſoluble in Water, *&c.*

Salts are divided into Acid and Alkaline: Of Acid or Sour, one has a Notion from Taſte; Sourneſs being one of thoſe ſimple Ideas, which one cannot more plainly deſcribe. What being mix'd with an Acid cauſeth an Efferveſcence, is call'd an Alkali.

Efferveſcence, in the Chymical Senſe, ſignifies an inteſtine Commotion, produced by mixing two Bodies together, that lay at reſt before; attended ſometimes with a hiſſing Noiſe, Frothing, and Ebullition: For Example, let us place in the firſt Claſs, Acids, as Vinegar, Juice of Limons, Juice of Oranges, Spirit of Nitre, Spirit of Alum: In the ſecond Claſs, other ſaline Subſtances obtain'd from Animals and Vegetables, by Diſtillation, Putrefaction, Calcination, as Spirit of Urine, Spirit of Hartshorn, Salt of Tartar; becauſe the Subſtances of the ſecond Claſs being mix'd with the Subſtances of the firſt, raiſe an Efferveſcence, they are call'd Alkalis. There is a third Claſs of Subſtances, commonly call'd Abſorbents, as the various kinds of Shells, Coral, Chalk, Crabs-eyes, *&c.* Which being mix'd with the firſt Claſs, likewiſe raiſe an Effervеſcence, and are therefore call'd Alkalis, tho' not ſo properly; for they are not Salts, and have nothing common with the ſecond Claſs, except this Quality of fermenting with Acids.

It is obſervable, that a violent Cold, as well as Heat, may be produced by this Ebullition; for if Sal Ammoniac, or any pure volatile Alkali diſſolv'd in Water be mix'd with an Acid, an Ebullition with a great Degree of Cold will enſue, therefore, I think (with leave of the Chymiſts) Effervеſcence not ſo proper a Word to expreſs this inteſtine Motion. There is another Criterion of Acid and Alkali by the Change of Colour which they produce in ſome Bodies; for Example, thoſe Liquors, which being pour'd to the Syrup of Violets, turn it red, are Acids; thoſe which change it into a green Colour, are reckon'd Alkalis. Thus Oil of Vitriol turns Syrup of Violets red, and Oil of Tartar green.

The Word Alkali, comes from an Herb call'd by the *Egyptians*, Kali. This Herb they burnt to Aſhes, boil'd them in Water; and after having evaporated the Water, there remain'd at the bottom a white Salt, this they call'd Sal Kali, or Alkali. It is corroſive, producing Putrefaction in Animal Subſtances, to which it is apply'd.

Subſtances which are not perfectly Acid, but naturally turn ſo, I call Aceſcent.

Subſtances which are not perfectly Alkaline, but naturally turn ſo, I call Alkaleſcent.

Theſe are not Qualities in Bodies merely imaginary, but have very different and contrary Effects upon Human Bodies.

Salts, which are neither acid nor alkaline, are call'd Neutral; ſo are Sal Ammoniac, Sea-Salt, Sal Gemmæ, Borax, Alum, Nitre, which as long as they retain their ſaline Quality, are neither acid nor alkaline. But the Chymical Products of them all (except Sal Ammoniac) are generally Acid.

Fix'd Salts are ſuch as ſuſtain the Fire without flying away.

Volatile Salts fly away with a ſmall Heat, affecting the Noſe with an urinous Smell.

There are volatile and fix'd Alkalis.

The eſſential Salts of Plants are ſuch as ſhoot upon the Sides of the Veſſels, which contain their expreſs'd Juices.

In Diſtillations, what trickles down the Sides of the Receiver in certain unctuous Rivulets, if it will not mix with Water, it is call'd Oil, if it will mix with Water, it is call'd Spirit: Spirits are either inflammable, or not inflammable; the laſt either Acid or Alkaline. Alkaline Spirits, are ſubtile volatile Liquors, that run in Veins down the Sides of the Receiver in Diſtillations, which will not take Fire, mix with Water, and contain ſome Alkaline Salt, as Spirit of Hartſhorn. Such are obtain'd from all the Parts of Animals, from all Plants by Putrefaction, and from the pungent kind, as Muſtard, Horſe-Radiſh, *&c.* without it. Acid Spirits are ſubtile Liquors which come over in Diſtillations, not inflammable, miſcible with Water, ſuch are obtain'd from Vegetables diſtill'd with Water, and likewiſe from Foſſils; inflammable Spirits are ſubtile volatile Liquors which come over in Diſtillations, miſcible with Water, and wholly combuſtible; ſuch Spirits are obtainable from Plants by a previous Fermentation, and not without it. By the Spirit of a Plant or that of an Animal, we underſtand that pure elaborated Oil, which by reaſon of its extreme Volatility exhales ſpontaneouſly, in which the Odour or Smell conſiſts.

Sope is a Mixture of a fix'd Alkaline Salt and Oil, in common Uſe its Virtues are cleanſing, penetrating, attenuating and reſolving. Any Mixture of any oily Subſtance with Salt may be call'd a Sope.

Bodies of this Nature are call'd Saponaceous.

INTRODUCTION.

HE who would skilfully treat of the Nature and Choice of different ſorts of Aliment, ought to draw his Obſervations from the following Particulars. *Firſt*, From the Alterations which the Aliment undergoes in its Paſſage into the Blood. *Secondly*, From the Alteration it undergoes during its Circulation with the Blood. *Thirdly*, From the Nature and moſt ſimple Analyſis of Vegetable Subſtances. *Fourthly*, From the Nature and moſt ſimple Analyſis of Animal Subſtances. *Fifthly*, He ought to treat of the Effects of different ſorts of Alimentary Subſtances upon the Fluids and Solids of a Human Body.

Sixthly, Of the different Intentions to be purſued in the Choice of Aliment in different Conſtitutions. Tho' I have neither Time, Ability, nor Obſervations ſufficient to handle thoſe Particulars ſo fully as they deſerve, I hope at leaſt to give a Specimen how they ought to be treated.

This is agreeable to the Doctrine of *Hippocrates*, who tells you in his firſt Book of Diet, that to write duly upon it, one muſt underſtand the Nature of Aliment, and of the Perſon it is given to.

For the Eaſe of the Reader I have ſet down every thing in diſtinct Propoſitions, with Inferences and Obſervations; the firſt in *Roman*, the other in common Numbers.

AN
ESSAY
CONCERNING
The Nature of Aliments, and the Choice of them, according to the different Conſtitutions of Human Bodies.

CHAP. I.

Obſervations drawn from the Alterations which the Aliment undergoes in its paſſage into the Blood.

PROP. I.

MASTICATION * is a very neceſſary Preparation of ſolid Aliment, without which there can be no good Digeſtion.

---

* *Chewing.*

By Chewing, ſolid Aliment is divided into ſmall Parts; in a human Body, there is no other Inſtrument to perform this Action, but the Teeth. By the Action of Chewing, the Spittle and Mucus are ſqueez'd from the Glands, and mix'd with the Aliment, which Action if it be long continued, will turn the Aliment into a ſort of Chyle. The Spittle is an active Liquor, immediately deriv'd from the arterial Blood. It is * ſaponaceous, as appears by its frothing, and likewiſe by Diſtillation, and conſequently is attenuating, reſolving, penetrating, and cleanſing. After long Abſtinence, it is extremely ſharp, and copious; it ferments with the juices of Vegetables, and conſequently diſpoſeth them to be chang'd into inflamable Spirits; it diſcovereth its Virtues in ſeveral Chirurgical Uſes. Beſides, in the Action of Chewing, the Mucus mixeth with the

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* *Soapy. Vide* Explanation of the Chymical Terms.

Aliment: The Mucus is an Humour different from the Spittle; and the great Quantity of Air which it contains, helps to diſſolve the Aliment. The neceſſity of Spittle to diſſolve the Aliment, appears from the contrivance of Nature in making * the ſalivary Ducts of Animals, which ruminate or chew the Cud, extremely open. Such Animals as ſwallow their Aliment without Chewing, want ſalivary Glands; and Birds have them placed in their Maw. There are Inſtances of Men who ſwallow'd their Meat whole, but ruminated or chew'd the Cud afterwards. Rumination ſeems to be given to Animals to enable them at once to lay up a great ſtore of Food and afterwards to chew it. And Animals ruminate more upon Hay than Graſs, the Food being harder. From all which Obſervations it appears, that the Solution of the Aliment by Maſtication is very neceſſary;

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* *The Canals which ſeparate the Spittle.*

ry; and that without it the Aliment could not be duly diſpoſed for the other Changes which it receives as it paſſeth through the * Alimentary Duct.

1. A great loſs of Spittle cauſeth a decay of Appetite. This has been confirm'd by Experience in ſeveral, who have made it their conſtant Cuſtom to chew Maſtick; chewing and ſmoking of Tobacco is only proper for phlegmatick People.

2. The Humour of Salivation is not properly Spittle, but putrified Blood.

3. The Depravation of the Inſtruments of Maſtication, by a paralytical Diſpoſition, or by the want of Teeth, as in old Men and Infants, is a natural Indication of a liquid Diet, as of Milk and Broths, and even ſuch of them as take Solids ought to chew in order to make an Expreſſion of the Spittle.

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* *The whole Paſſage from the Mouth to the* Anus.

P R O P. II.

The Change which is made of the Aliment in the Stomach is effected by * Attrition of the ſolid Parts, or inward Coat of the Stomach, and the Action of a diſſolvent Liquor aſſiſted with Heat.

The Liquor in the Stomach is a Compound of that which is ſeparated from its inward Coat; of the Spittle, which is almoſt continually ſwallow'd, and the Liquor which diſtills from the Gullet. By the help of this Liquor, and the conſtant Attrition of the ſolid Parts, the Aliment is diſſolv'd by an Operation reſembling that of making an Emulſion; in which Operation the Oily parts of Nuts and Seeds being gently ground in a marble Mortar, and gradually mix'd with ſome watery Liquor, are diſſolv'd into a ſweet, thick, turbid,

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* *Rubbing, Grinding.*

milky Liquor, reſembling the Chyle in an Animal Body. That the Stomach in Animals grinds the Subſtances which it receives, is evident from the Diſſection of Animals, which have ſwallow'd Metals, which have been found poliſh'd on the ſide next the Stomach. Birds being without Teeth to chew their Aliment, have ſtrong and nervous Stomachs, to make this Attrition the ſtronger; and this motion in them hath been both ſeen and heard. The Rugæ or Plies of the inward Coat of the Stomach, contribute to the detaining the Aliment in the Stomach. The Heat in Land Animals aſſiſts likewiſe in the Solution of the Aliment, but not much; for Fiſhes have a ſtrong Digeſtion without it, tho' by the trial of the Thermoſcope, they have more heat than the Element which they ſwim in. It has been ſhew'd before that the Spittle is a great Diſſolvent, and there is a great quantity of it in the Stomach, being ſwallow'd conſtantly, at leaſt in Sleep. He who eats a Pound of Bread ſwallows at leaſt as much Spittle as Bread. This Liquor of the Stomach in a ſound State is not Acid, for it has been found by Experiments, that Pearls have paſs'd through Cocks and Hens undiſſolv'd.

1. The Liquor of the Stomach, which with faſting grows extremely ſharp, and the quick Senſation of the inward villous Coat of the Stomach, ſeem to be the cauſe of the Senſe of Hunger.

2. Such as have, by the uſe of ſpirituous Liquors, weaken'd and deſtroy'd ſome of the ſolid parts of the Stomach, can neither recover a good Appetite nor right Digeſtion; for this inward villous Coat when deſtroy'd cannot be reſtor'd.

3. This Liquor of the Stomach may (by reaſon of ſome ſaline Acrimony) acquire ſome determined Quality, and affect human Creatures with

Appetites of other Animals of unuſual things, which in that caſe they can take without hurt; or it may likewiſe occaſion an exorbitant Appetite of uſual things, which they will take in ſuch quantities till they vomit them up like Dogs, from whence it is call'd Canine; in the firſt caſe the Organs of Taſte are vitiated; both Diſeaſes are cur'd by Diet, oppoſite to this Acrimony, whether Alkaline, Acid or * Muriatick.

4. Thirſt and Hunger denote the State of the Spittle, and Liquor of the Stomach. Thirſt is the ſign of an Acrimony commonly † Alkaleſcent or Muriatick.

5. A paralytical Diſpoſition of the Nerves of the Stomach, a deprav'd Condition of the Liquor of the Stomach, but chiefly ſomething viſcous, fat, and oily remaining there, deſtroys the Senſation of Hunger.

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* *Briny.*

† *See* Explanation of the Chymical Terms.

6. The Action of the Stomach is totally ſtopp'd by too great Repletion, in which caſe both the Orifices of the Stomach by a neceſſary Mechaniſm cloſe, and neither will admit nor expel any thing. Conſequently Relaxing, as by warm Water, is the only proper Expedient.

The Signs of the Functions of the Stomach being deprav'd, are Pains in the Stomach many Hours after Repaſt, * Eructations either with the Taſte of the Aliment, Acid, Nidoroſe, or Fœtid, reſembling the Taſte of rotten Eggs; Inflations, or the Senſation of Fulneſs; Sickneſs, Hickup, Vomiting, a Fluſhing in the Countenance, Foulneſs of the Tongue. In general, whatever be the State of the Tongue, the ſame is that of the inward Coat of the Stomach. When the Taſte of the Mouth is bitter, it is a Sign of a Redundance of a bilious Alkali, and demands a quite diffe-

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* *Belchings.*

different Diet from the caſe of Acidity or Sourneſs.

PROP. III.

By Digeſtion in the Alimentary Duct the ſpecifick Difference of all Subſtances is aboliſh'd, and the whole Action reſembles Putrefaction.

Digeſtion is a Fermentation begun, becauſe there are all the Requiſites of ſuch a Fermentation, Heat, Air and Motion; but it is not a compleat Fermentation, becauſe that requires a greater time than the Continuance of the Aliment in the Stomach. Vegetable Putrefaction reſembles very much Animal Digeſtion. Vegetable Putrefaction is produced by throwing green juicy Vegetables in a Heap in open warm Air, and preſſing them together, by which all Vegetables acquire, *Firſt*, A Heat equal to that of a Human Body. *Secondly*,

Secondly, A putrid ſtercoraceous Taſte and Odour, in Taſte reſembling putrid Fleſh, and in Smell human Fœces. This putrid Matter being diſtill'd, affords, *Firſt*, A Water impregnated with an urinous Spirit, like that obtainable from Animal Subſtances, which Water is ſeparable into Elementary Water, and a volatile Animal Salt. *Secondly*, A volatile oily Alkaline Salt. *Thirdly*, A volatile thick Oil. *Fourthly*, The remainder being calcin'd affords no fixt Salt; in ſhort, every thing happens as if the Subject had not been Vegetable, but Animal. Putrefaction utterly deſtroys the ſpecifick Difference of one Vegetable from another, converting them into a pulpy Subſtance of an Animal Nature: Making the ſame Alteration very near, as if the Vegetable had gone through the Body of a ſound Animal; for tho' ſuch an Animal ſhould entirely live upon Acids, no part of its Body affords any acid fix'd Salt. * This is ſo far true, that even the Herbs taken out of the *Omaſus* of ruminating Animals afford the ſame Contents as putrified Vegetables. But tho' this Action of Putrefaction comes the neareſt to Animal Digeſtion, it ſo far differs from it, that the Salts and Oils are only detain'd in the Animal Body ſo long as they remain benign and friendly to it; but as ſoon as they putrify entirely, are either thrown off, or muſt produce mortal Diſtempers.

PROP. IV.

The Gall is the principal Diſſolvent of the Aliment, and when it is peccant or deficient, there can be no right Digeſtion.

The Bile is of two ſorts, the Cyſtick or that contain'd in the Gall-Bladder, which is a ſort of Repoſitory for the Gall, and the Hepatick or what flows immediately from the Liver. The Cyſtick Gall is thick and intenſely bitter, ſo that one Drop of it will make a whole Pint of Water bitter. The Hepatick Gall is more fluid and not ſo bitter. There is no other bitter Humour in a Human Body, beſides Gall, except the Wax of the Ear. The Gall is not a perfect Alkali, for it does not ferment with an Acid, but it is Alkaleſcent, entirely oppoſite to Aceſcents, and ſoon corruptible, and convertible into a Corroſive Alkali. It is a ſaponaceous Subſtance, being compos'd of an Alkaline Salt, Oil, and Water, all which can be extracted from it. The Bile, like Soap, takes out Spots from Wool or Silk, and the Painters uſe it to mix their Colours; by this ſaponaceous Quality, it mixeth the oily and watery Parts of the Aliment together. But tho' the Bile be an Oil, it is not combuſtible till dry. Theſe

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* *Vide* Philoſophical Tranſactions.

Qualities make it a moſt powerful and proper Diſſolvent, which appears by Experience. The Milk in the Stomach of Calves, which is coagulated by the Runnet, is again diſſolv'd, and render'd fluid by the Gall in the *Duodenum*. Voracious Animals, and ſuch as do not chew, have a great quantity of Gall, and ſome of them have the Biliary Duct inſerted into the *Pylorus*. It is likewiſe the chief Inſtrument (by its Irritation) of the periſtaltick Motion of the Guts. Such as have the Bile peccant or deficient are reliev'd by Bitters, which are a ſort of ſubſidiary Gall. The learned *Boerhaave* has found the Gall of an Eel, which is moſt intenſely bitter, a moſt effectual Remedy in ſuch Caſes. The common Symptoms of the Excretion of the Bile being vitiated, are a yellowiſh Colour of the Skin, white hard Fœces, a Loſs of Appetite, a lixivial Urine.

PROP. V.

The Bile is ſo acrid, that of itſelf it could not be admitted into the Lacteal Veſſels. Therefore Nature has furniſh'd another Humour, *viz.* the pancreatick Juice to temper its Bitterneſs and Acrimony, after it has done its Office.

The *Pancreas* is a large ſalivary Gland ſeparating about a Pound of an Humour like Spittle, in twelve Hours. It is probable that this Humour tempers the Acrimony of the Gall, becauſe the Bile mix'd with Spittle loſeth its Bitterneſs in time, and even Wormwood eat with Bread will do ſo, becauſe it is mix'd with a great Quantity of Spittle. The pancreatick Juice likewiſe mixeth the Parts of the Aliment rendring the Chyle homogeneous. When the Bile is not ſeparated in the Liver the Fœces are white, but this is not occaſion'd ſion'd by the Mixture of the pancreatick Juice.

PROP. VI.

* Acrimony and Tenacity are the two Qualities in what we take inwardly moſt to be avoided.

The papillous inward Coat of the Inteſtines is extremely ſenſible, and when the Acrimony is ſo great as to affect the ſolid Parts, the Senſation of Pain is intolerable. The † periſtaltick Motion of the Guts, and the continual Expreſſion of the Fluids, will not ſuffer the leaſt Matter to be apply'd to one Point the leaſt inſtant of Time; for the ſmalleſt quantity of Turpentine or Pitch will ſtick to the Fingers, but not to the Guts. But this Motion in ſome Human Creatures may be weak in reſpect to the

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* *Sharpneſs and Glueneſs.*

† *Alternate Motion of Contraction and Dilatation, commonly tending downwards.*

the Viſcidity of what is taken ſo as not to be able to * propell it, the conſequence of which is dangerous, and perhaps fatal to the Life of the Creature. Subſtances hard, cannot be diſſolv'd, but they will paſs; but ſuch, whoſe Tenacity exceeds the Powers of Digeſtion, will neither paſs nor be converted into Aliment. Beſides, the Mouths of the ‡ Lacteals may permit Aliment too acrimonious, or not ſufficiently attenuated, to enter in People of lax Conſtitutions, whereas their Sphincters will ſhut againſt them in ſuch as have ſtrong Fibres. The Mouths of the Lacteals may be ſhut up by a viſcid † *Mucus*, in which caſe the Chyle paſſeth by Stool, and the Perſon falleth into an || Atrophy.

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[*] *Drive forwards.*

[‡] *Veſſels which carry the Chyle through the Meſentery.*

[†] *Snot.*

[||] *Decay of Fleſh.*

1. Fat or Oil is neceſſary, as for Animal Motion, ſo likewiſe for this periſtaltick Motion of the Inteſtines; and lean People often ſuffer for want of it, as fat People may by Obſtruction of the Veſſels. The Fat will melt by ſtrong Motion, as has been found in Horſes by hard running.

2. This periſtaltick Motion, or repeated Changes of Contraction and Dilatation, is not in the lower Guts, elſe one would have a continual needing to go to ſtool. Wind and Diſtention of the Bowels are Signs of a bad Digeſtion in the Inteſtines, (for in dead Animals, when there is no Digeſtion at all, the Diſtention is in the greateſt Extremity) ſo likewiſe are Diarrhœas, which proceed from Acrimony, Laxity of the Bowels, or Obſtruction of the Lacteals.

PROP. VII.

The Mechaniſm of Nature in converting our Aliment into Animal Subſtances conſiſts chiefly in two Things. *Firſt*, In mixing conſtantly with it Animal Juices already prepar'd. *Secondly*, In the Action of the ſolid Parts as it were churning them together. This is evident, if we conſider firſt the vaſt quantity of *Saliva* mix'd with the Aliment in chewing: He that eats a Pound of Bread mixeth it very near with as much Spittle, and this ſeparated from Glands that weigh only about four Ounces. Afterwards the ſame Aliment is mix'd with the Liquor of the Stomach, the Bile and pancreatick Juice, and if we compute the quantity of Bile and Pancreatick, from the Weight of theſe *Viſcera* in reſpect of the ſalivary Glands, we ſhall find ſtill a vaſtly greater quantity of theſe Animal Juices mix'd with the Aliment; this is not all, for when the Chyle paſſeth through the * Meſentery, it is mix'd with the Lymph (which is the moſt ſpirituous and elaborated Part of the Blood) from its Glands: So that the Juices of an Animal Body are as it were † cohobated, being excreted and admitted again into the Blood with the freſh Aliment; all the while the ſolid Parts act upon the Mixture of Aliment and Animal Juices, ſo as to make the Mixture more intimate and compleat. Beſides, none of theſe Animal Juices, except the Liquor of the Inteſtines, are mix'd with the Fœces of an Animal, which in a ſound State are hard: So that one may compute, that a Pound of Bread before it enters the Blood, is mix'd perhaps with four times the quantity of Animal Juices. The ſame Oeconomy is obſerv'd in the Circulation of the Chyle with the Blood, by mixing it intimately with the Parts of the Fluid to which it is to be aſſimilated.

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* *A Membranous part in the Lower Belly, to which the Guts are connected.*

† *New diſtill'd.*

1. From whence it follows, that an Animal, whoſe Juices are unſound or ſolid Parts weak, can never be duly nouriſh'd; for unſound Juices can never duly repair the Fluids and Solids of an Animal Body, and without a due Action of the ſolid Parts, they never can be well mix'd. The Stomach, the Inteſtines, the Muſcles of the lower Belly, all act upon the Aliment; beſides, the Chyle is not ſuck'd but ſqueez'd into the Mouths of the Lacteals by the Action of the Fibres of the Guts: The Mouths of the Lacteals are open'd by the inteſtinal Tube, affecting a ſtraight inſtead of a ſpiral Cylinder; therefore it is plain that the Chyle muſt be peccant in Quantity or Quality when theſe

Actions and Organs are too weak; and whatever ſtrengthens the ſolid Parts muſt help the Digeſtion.

2. Diarrhœas and ſtrong Purgations muſt ſpoil the firſt Digeſtion, becauſe of the great Quantities of Animal Liquids which they expell out of the Body; a vaſt quantity and variety of Animal Liquors are carried off by Purging: Air, Spittle, *Mucus*, all the Liquors that are ſeparated in the Glands of the Alimentary Duct, both ſorts of Bile, the pancreatick Juice, Lymph, and ſometimes Blood, computing the quantity of theſe Secretions, makes it plain that the whole Juices may be carried off by Purging; and when thoſe Liquors are expell'd out of the Body, which by their mixture convert the Aliment into an Animal Liquid, this cannot ſo well be perform'd.

3. The periſtaltick Motion of the Inteſtines is the laſt that ceaſeth in an Animal Body, for it remains af-

ter the Motion of the Heart is ceas'd. By the Entry of the Chyle and Air into the Blood, by the Lacteals, the Animal may again revive.

The Obſtruction of the Glands of the Meſentery is a great Impediment to Nutrition, for the Lymph in thoſe Glands is a neceſſary Conſtituent of the Aliment before it mixeth with the Blood; and for the ſame Reaſon young Animals are moſt and beſt nouriſh'd, for the Meſenterick Glands are largeſt in the vigour of Youth; in old Age they vaniſh, and are liable to Obſtructions: Therefore ſcrophulous Perſons can never be duly nouriſh'd; for ſuch as have Tumors in the Parotides often have them in the Pancreas and Meſentery.

4. In tabid Perſons Milk is the beſt Reſtorative, for it is Chyle already prepar'd; the Aliment paſſeth very quick into the Paps of any Animal that gives Milk; for if a Nurſe after being ſuck'd dry eats Broth, the

Infant will ſuck the Broth almoſt unalter'd.

5. The Chyle by reaſon of the Smoothneſs of its Particles is white, it grows more gray in the Thoracick Duct, where it ſtill retains the Flavour of the Aliment.

6. Animals, which take a large quantity of Aliment by the Mouth, may be leſs nouriſh'd than thoſe that take a ſmaller; for according to the Force of the * Chylopoetick Organs, a larger or leſs quantity of Chyle may be extracted from the ſame quantity of Food.

Aſtriction of the Belly is commonly a ſign of ſtrong Chylopoetick Organs.

PROP. VIII.

The moſt ſubtile part of the Chyle paſſeth immediately into the Blood by the † abſorbent Veſſels of the Guts,

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* *Which makes Chyle.* † *Which ſuck in.*

which diſcharge themſelves into the Meſaraick Veins; their Largeneſs and Number demonſtrate this, for they are numerous and vaſtly larger than their correſpondent Arteries; beſides, wherever there are * Emiſſaries, there are abſorbent Veſſels, *ex. gr.* in the Skin, by the abſorbent Veſſels of which Mercury will paſs into the Blood.

Birds, which have ſtrong and large Breaſts, ſmall Bellies, and their Ribs upon their Backs, have no Lacteals nor † Thoracick Duct, and their Aliment paſſeth immediately into the Meſaraick Veins. If one conſiders the Capacity of the Thoracick Duct, and the Slowneſs of the Paſſage of the Aliment by the Lacteals through it, and at the ſame time the great quantity of ſome Liquors, as of Chalybeat Water, which in ſome paſs in a ſmall time by Urine; by an eaſy

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* *Veſſels which throw out a Liquid.*

† *A Canal through which the Chyle paſſeth from the Lacteals into the Blood.*

Calculation he will be able to demonſtrate that ſuch a quantity could not paſs into the Blood by the Thoracick Duct in ſo ſhort a time.

Therefore when the Intention is to give an immediate Refreſhment to the Spirits, as after great Abſtinence and Fatigue, thin or liquid Aliment is the propereſt, and for the ſame reaſon Chalybeat Waters ſeem to be a proper Remedy in Hypochondriacal Caſes; their ſubtle and divided Particles are taken immediately into the Meſaraick Veſſels, and carried ſtraight into the Liver and Spleen.

CHAP. II.

Obſervations drawn from the Circulation of the Chyle with the Blood.

PROP. I.

THE Chyle of it ſelf cannot paſs through the ſmalleſt Veſſels (for it neither will paſs by Urine nor Sweat) therefore it cannot nouriſh the Animal, till it is converted into Blood; and it is converted into Blood by the Mechaniſm of Nature above deſcrib'd, *viz.* by intimately mixing it with the Particles of the Liquor, to which it is to be aſſimilated, as will appear by what follows.

PROP. II.

The Lungs are the firſt and chief Inſtrument of * Sanguification.

The Chyle firſt mixeth with the Blood, in the Subclavian Vein, and enters with it into the Heart, where it is very imperfectly mix'd, there being no Mechaniſm nor Fermentation by extraordinary Heat, *&c.* to convert it immediately into Blood, which is firſt effected by the Lungs. The Windpipe divides it ſelf into a great number of Branches called Bronchia, theſe end in ſmall Air-Bladders dilatable and contractible, capable to be inflated by the Admiſſion of Air, and to ſubſide at the Expulſion of it. The Pulmonary Artery and Vein paſs along the Surfaces of theſe Air-Bladders in an infinite number of Ramifications. A great number of thoſe Air-Bladders form what we call Lobuli, which hang upon the Bronchia, like Bunches of Grapes upon a Stalk. Theſe Lobuli conſtitute the Lobes, and the Lobes the Lungs. Let us ſee what effect an Engine ſo contriv'd will have upon the crude mixture of Blood and Chyle: firſt, as the Blood and Chyle paſs together through the * Ramifications of the Pulmonary Artery, they will be ſtill more perfectly mix'd; a red Liquor and a white Liquor, paſſing only through one Tube, will both retain their original Colours; but if this

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* *Making of Blood.*

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* *Branchings.*

Pipe is divided into Branches, and theſe again ſubdivided, the red and white Liquors, as they paſs through the Ramifications, will be more intimately mix'd, and both Colours will be blended together; the more Ramifications, the Mixture will be the more perfect; but this is not all, for as this Mixture of Blood and Chyle paſſeth through the Arterial Tube, it is preſs'd by two contrary Forces, that of the Heart driving it forward againſt the ſides of the Tube, and the Elaſtick Force of the Air preſſing it on the oppoſite ſide of thoſe Air-Bladders; along the Surface of which (as was ſaid before) this Arterial Tube creeps. By thoſe two oppoſite Forces, the parts of the Liquor are compreſs'd together, and as it were churn'd, and more intimately mix'd. Moreover by the alternate Motion of thoſe Air-Bladders, whoſe Surfaces are by turns freed from mutual Contact, and by a ſudden Subſidence meet again by the ingreſs and egreſs of the Air; the Liquor is ſtill farther attenuated, diſſolv'd, and chang'd into a * homogeneous Fluid.

1. The Force of the Air upon the Pulmonary Artery is but ſmall, in reſpect of that of the Heart, but it is ſtill ſomething; and whatever the effect of it be, it increaſeth, and diminiſheth with the Gravity of the Air, to which the † Elaſticity is proportional.

As to the admittance of the weighty and elaſtick Parts of the Air into the Blood, through the Coats of the Veſſels, it ſeems contrary to Experiments upon dead Bodies. The ſpumous and florid ſtate, which the Blood acquires in paſſing through the Lungs, is eaſily accounted for, from its own Elaſticity, and the violent Motion before deſcrib'd; the Aerial Particles in the Blood and Chyle expanding themſelves. That the Air in the Blood-

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* *Of one kind.* † *Spring.*

Veſſels of live Bodies has a Communication with the outward Air, I think ſeems plain from the Experiments of human Creatures being able to bear Air of much greater Denſity in diving, and of much leſs upon the tops of Mountains, provided the Changes be made gradually; otherwiſe the Air within the Veſſels being of a leſs Denſity, the outward Air would preſs their ſides together, and being of a greater Denſity, would expand them ſo as to endanger the Life of the Animal *.

1. As much Blood paſſeth through the Lungs, as through all the reſt of the Body: The Circulation is quicker, and Heat greater, and their Texture is extremely delicate; upon all which Accounts they are extremely ſenſible of any Force either from the too violent Motion or Acrimony of the Blood.

2. Since the Lungs are the firſt and chief Inſtrument of Sanguification,

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* *See the Eſſay concerning* the Effects of Air on human Bodies; *printed for* Jacob Tonſon.

tion, the Animal that has that Organ faulty, can never be duly nouriſh'd, nor have the Vital Juices, (which are all deriv'd from the Blood) in a good State; and this is true, underſtanding the Lungs only as an Inſtrument of Digeſtion, and abſtracting from an acrid and purulent Matter, that mixeth with the Blood in ſuch as have their Lungs ulcerated; therefore ſuch as have a faulty Circulation through the Lungs, ought to eat very little at a time, becauſe the Increaſe of the quantity of freſh Chyle muſt make that Circulation ſtill more uneaſy; which indeed is the Caſe of Conſumptive and ſome Aſthmatick Perſons, and accounts for the Symptoms they are troubled with after eating: Therefore the great Rule of Diet for Conſumptive People, and upon which the whole Cure depends, is taking their Aliment in ſmall quantities at a time. It happens very often unfortunately for Aſthmatick

Perſons that they have voracious Appetites, and conſequently for want of a right Sanguification are often * Leucophlegmatick.

3. The Choice as well as Quantity of Diet, is of great Importance to ſuch as have weak Lungs, for it was obſerv'd † that the Chyle in the Thoracick Duct retain'd the original Taſte of the Aliment, which not being yet converted into Blood, and intirely ſubdued by Circulation, muſt operate upon the Lungs into which it enters in this Condition, according to its original Qualities. The Texture of the Lungs is extremely delicate, and beſides, being the chief Inſtrument of Sanguification, and acting ſtrongly upon the Chyle to bring it to an Animal Fluid, muſt be reacted upon as ſtrongly.

4. Good Air aſſiſts the Digeſtion, as it is an Inſtrument of Sanguifica-

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* *Pale and phlegmatick, bloated.*

† Chap. I. Prop. VII. 5.

tion in the Lungs. It is known by Experience, that People both loſe and recover their Appetites in different kinds of Air.

PROP. III.

The Chyle is not perfectly aſſimilated into Blood by its Circulation through the Lungs; for it is known by Experiments of Blood-letting, that ſeveral Parts of it remain unmix'd with the Blood, ſwimming a-top like an oily Subſtance, even eight Hours after repaſt; and no doubt this Digeſtion, as well as that through the Alimentary Duct, is different in different Subjects.

PROP. IV.

After the Chyle has paſs'd through the Lungs, Nature continues her uſual Mechaniſm, to convert it into Animal Subſtances, during its Circulation with the Blood, *viz.* by intimately mixing the Parts of the Aliment,

ment, with thoſe of the Animal Juices, by the Action of the ſolid Parts.

The Mixture of Blood and Chyle, after its Circulation through the Lungs, being brought back into the left Ventricle of the Heart, is drove again by the Heart into the * Aorta, through the whole Arterial Syſtem; every Particle of the Body receives ſome Branch from the Aorta, except ſome of the ſolid Parts of the Liver. The Arteries are elaſtick Tubes, endued with a contractile Force, by which they ſqueeze and drive the Blood ſtill forward, it being hinder'd from going backward by the Valves of the Heart. They are † conical Veſſels, with their Baſes towards the Heart; and as they paſs on, their Diameters grow ſtill leſs and leſs: Conſequently the Celerity of the Motion diminiſhes by the Increaſe of the Friction of the Fluid againſt the ſides

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* *The great Artery, which proceeds from the left Ventricle of the Heart, and carries the Blood through the Body.*

† *Tapering, diminiſhing by degrees.*

of the Tubes: Without this Motion, both the Blood and the Chyle would be converted into one ſolid Maſs; but on the contrary by the continuance of it, the Fluid being compreſs'd by the ſides of the Tube, eſpecially in the ſmall Veſſels, where the Points of Contact are more, the Blood and Chyle are ſtill more intimately mix'd, and by Attrition or Friction attenuated; by which the Mixture acquires a greater degree of Fluidity and Similarity, or Homogeneity of Parts. Therefore,

1. Good Blood, and a due Projectile Motion or Circulation are neceſſary to convert the Aliment into laudable Animal Juices. Hence appears the Neceſſity of Exerciſe (which increaſeth the Elaſticity of the ſolid Parts) towards good Digeſtion.

2. The Strength of the Aliment (by which I underſtand its Reſiſtance to the ſolid Parts) ought to be proportion'd to the Strength of the ſolid

Parts; and as Animals that uſe a great deal of Labour or Exerciſe, have their ſolid Parts more elaſtick and ſtrong, they can bear and ought to have ſtronger Food, too thin Nouriſhment being quickly diſſipated by the vigorous Action of the ſolid Parts. The Neglect of this Rule is the Occaſion of great Diſeaſes, the Subſtance to be ground or prepared ought to be proportion'd to the Strength of the Engine.

3. The Defects of the firſt Concoction are not to be mended by the ſecond; for if the Chyle paſſeth into the Blood in a bad State, as the force of Fibres, which contribute to the ſecond Digeſtion, is limited, it is not ſufficient to convert a peccant Liquor, into laudable Animal Juices.

PROP. V.

The Aliment, as it circulates through an Animal Body, is reduc'd almoſt to an imperceptible Tenuity, before it can ſerve the Animal Purpoſes.

The Blood in live Animals, conſiſts of red Globules, ſwimming in a Serum or watery Liquor. The ſmalleſt Veſſels, which carry the Blood or red Fluid by lateral Branches, ſeparate the next thinner Fluid or Serum, the Diameters of which lateral Branches are leſs than the Diameters of the Blood-Veſſels, and will not in a healthy State admit rhe red Fluid. Such may be call'd Serous Arteries. Thoſe Serous Arteries emit lateral Branches, which carry a Lymph, a Liquor ſtill more limpid than Serum, and from the Liquor which they carry may be call'd, Lymphatick Arteries, tranſmitting their Liquor into the Lymphatick Veins; thoſe Lymphatick Arteries will not admit Serum. How far this Progreſſion goes is not certain; ten capillary Arteries in ſome parts of the Body, as in the Brain, are not equal to one Hair; and the ſmalleſt Lymphatick Veſſels are a hundred times ſmaller than the ſmalleſt Capillary Artery. What Mechaniſm is that which can attenuate a Fluid compounded of the Ingredients of Human Aliment, as Oil, Salts, Earth, Water, ſo as to make it flow freely through ſuch Tubes, without obſtructing or breaking them?

1. Hence one can eaſily perceive the Inconveniency of Viſcidity which obſtructs, and Acrimony that deſtroys the Capillary Veſſels.

2. Obſtructions muſt be moſt incident to ſuch Parts of the Body, where the Circulation and the elaſtick Force of the Fibres are both ſmalleſt, and thoſe are the Glands which are the Extremities of Arteries form'd into Cylindrical Canals.

3. Hence too ſolid or viſcous Aliment is hurtful to ſcrophulous Perſons.

PROP. VI.

The Fluids and Solids of an Animal Body demand a conſtant Reparation.

An Animal, in order to be moveable, muſt be flexible, and therefore is fitly made of ſeparate and ſmall ſolid Parts replete with proper Fluids. The whole Body is nothing but a Syſtem of ſuch Canals, which all communicate with one another, mediately or immediately (for a Lymphatick Veſſel communicates with the Artery, by the intermediate Gland.) In this moveable Body the fluid and ſolid Parts muſt be conſum'd; by the muſcular Motion, and the perpetual Flux of the Liquids, a great part of the Liquids are thrown out of the Body by proper Emiſſaries, and the ſmaller Solids are likewiſe rubb'd off, mix'd with the Fluids, and in that form exhal'd. Therefore both Fluids and Solids demand a conſtant Reparation.

1. The Quantity of Solids not morbid in an Animal Body is very ſmall, as appears by Atrophies, or Decays, and likewiſe by Microſcopes; thoſe Solids are entirely Nervous, and proceed from the Brain, and Spinal Marrow, which by their bulk appear ſufficient to furniſh all the Stamina or Threads of the ſolid Parts. The Solids are originally form'd of a Fluid, from a ſmall Point, as appears by the gradual Formation of a Fœtus. The Solids and Fluids differ only in the Degree of Coheſion, which being a little increas'd, turns a Fluid into a Solid. How the Fluids are repair'd, has been already explain'd. The Nutrition of the Solids is ſomewhat more obſcure.

PROP. VII.

Nutrition of the Solids is perform'd by the circulating Liquid in a due degree of Heat and Tenuity in the ſmalleſt Vaſcular Solids.

The Fluids and Solids of an Animal Body are eaſily tranſmutable into one another. The White of an Egg (a Fluid reſembling the Serum of the Blood, and of which a whole Animal is made) will coagulate and turn Solid by a moderate Heat, and the hardeſt of Animal Solids are reſolvable again into Gellies.

As the White of an Egg by Incubation, ſo can the Serum by the Action of the Fibres be ſtill more and more * attenuated. A Fluid moving through a flexible Canal, when the Canal grows extremely ſmall and ſlender, by its Friction, will naturally lengthen, and as it were wire-draw the Sides of the Canal, according to the Direction of its Axis; and as the Canal is lengthen'd or wire-drawn, it grows ſtill ſmaller and ſlenderer, ſo as that the

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* *Made thin.*

evaneſcent * Solid and Fluid will ſcarce differ, and the Extremities of theſe ſmall Canals will by Propulſion be carried off with the Fluid continually, and likewiſe continually repair'd, and new ones made in their room. The Force of the Fluid will likewiſe ſeparate the ſmalleſt Particles which compoſe the Fibres, ſo as to leave vacant Interſtices in thoſe Places where they coher'd before, which vacant Places will be again fill'd up by Particles carried on by the ſucceeding Fluid (as a Bank by the Mud of the Current) and which of courſe muſt be reduced to that Figure which gives the leaſt Reſiſtance to the Current, and conſequently muſt apply themſelves to the inward Surface of the Canal, ſo as to fill up the Interſtices, and to preſerve the Tube, the Syſtem of Tubes, that is, the Animal entire.

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* *Vaniſhing, growing extremely ſmall.*

1. Thoſe Tubes which are moſt recently made of Fluids are moſt flexible, and moſt eaſily lengthen'd; ſuch Tubes as have often ſuffer'd this Force grow rigid, and hardly more extendible therefore.

2. An Animal the nearer to its Original, the more it grows.

3. To this Motion of * Elongation of the Fibres, is owing the Union or Conglutination of the Parts of the Body, when they are ſeparated by a Wound.

4. From the foregoing Doctrine it is eaſy to explain the Formation of the moſt ſolid Parts of the Body, for when the Fluid moves in ſeveral ſmall Veſſels, which by the Contact of their Sides ſtop the Current of the Fluid, thoſe Canals by degrees are aboliſh'd and grow ſolid, ſeveral of them united grow a Membrane, theſe Membranes further conſolidated become Cartilages, and Cartilages,

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* *Lengthening.*

Bones; conſequently, an Animal the nearer it is to its Original, the more Pipes it hath, and as it advanceth in Age ſtill the fewer. Many of our Veſſels degenerate into Ligaments, the very Sutures of the Skull are aboliſh'd in old Age.

5. Many practical Rules may be drawn from the foregoing Doctrine, for the Diet of Human Creatures according to their different States of Life and the Condition of the Solids; it is evident that the Diet of Infants ought to be extremely thin, ſuch as lengthens the Fibres without Rupture; yet ev'n in a young Animal, when the Solids are too lax (the Caſe of rickety Children) the Diet ought to be gently aſtringent.

From this Doctrine it appears how detrimental acrimonious Aliment muſt be to ſuch as have any Sore, Ulcer, Wound, *&c.* becauſe Healing is perform'd by the Elongation of the Fibres; thoſe tender Fibres are deſtroy'd by Acrimony.

The Aliment likewiſe ought to be different, according to the State of the Solids, in Animals full grown: tho' an Animal arrives at its full Growth at a certain Age, perhaps it never comes to its full Bulk till the laſt Period of Life. The * *Membrana adipoſa* inveſts almoſt every Part of the Body, ſo that there is hardly any Fibre but is ſheath'd with a Part of it. This Membrane ſeparates an oily Liquor call'd Fat, neceſſary for many Purpoſes of Life; when the Fibres are lax, and the Aliment too redundant, great part of it is converted into this oily Liquor, all the ſuperfluous Weight of an Animal beyond the Veſſels, Bones and Muſcles is nothing but Fat; but the Converſion of the Aliment into Fat is not properly Nutrition, which is a Reparation of the Solids and Fluids; and Fat, properly ſpeaking, is neither. But I ſhall treat more particularly of theſe Subjects, in their proper Place.

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* *A Membrane which contains the Fat.*

7. The Matter of Nutrition is moſt ſubtile, and Nutrition the laſt and moſt perfect animal Action; to perform it by the foregoing Propoſitions, there muſt be a due degree of projectile Motion or Celerity of Circulation to which Attrition and Heat are proportional. The Heat equal to Incubation, is only nutritious; any thing leſs or more is inſufficient, and the nutritious Juice itſelf reſembles the White of an Egg in all its Qualities. By too weak a Circulation the Aliment approacheth to theſe Qualities which it would acquire by a ſmall degree of Heat without Motion, becomes viſcous, imperfectly mix'd; and the Perſon in this Condition is ſubject to all the Accidents of a *Plethora*. By too ſtrong a projectile Motion the Aliment tends to Putrefaction, is diſſipated, and

the ſolid Parts, inſtead of being repair'd, are deſtroy'd: Hence may be deduc'd the Force of Exerciſe in helping Digeſtion, and likewiſe the Rules for regulating the Times and Degrees of it. But thoſe are foreign to my Subject.

PROP. VIII.

The frequent Repetition of Aliment is not only neceſſary for repairing the Fluids and Solids of an Animal Body, but likewiſe to keep the Fluids from the putreſcent alkaline State, which they would acquire by conſtant Motion and Attrition, without being diluted by a freſh Emulſion of new Chyle.

An Animal that ſtarves of Hunger, dies feveriſh and delirious, as appears by Experiments upon Cats and Dogs; for the moſt fluid Parts are diſſipated, what remains turns * alkaline and

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* *See* Explanation of the Chymical Terms.

corroſive, affecting the tender Fibres of the Brain. The moſt ſevere Orders of the Church of *Rome* who practiſe Abſtinence, feel after it, fœtid hot Eructations and Head-Aches. Long Abſtinence does not kill by want of Blood; for twenty Days faſting will not diminiſh its Quantity ſo much as one great Hæmorrhage. An Animal can never die for want of Blood, while there is a Quantity ſufficient for the Continuity of the Preſſure, ſo apply'd to the Brain, as to produce Animal Spirits. Beſides, the Diminution both of the Fluids and Solids in an Atrophy, is much greater than what can happen by being ſtarv'd: Therefore Faſting kills by the bad State, not by the inſufficient Quantity of Fluids.

Any watery Liquor will keep an Animal from ſtarving very long, by diluting the Fluids, and conſequently keeping them from this alkaline State, which is confirm'd by Experience; for People have liv'd twenty four Days upon nothing * but Water; and the Stories of long Abſtinence, where Water has been allow'd, are not incredible.

1. Long Abſtinence in hot bilious Conſtitutions may be the Parent of great Diſeaſes; yet it is more troubleſome to acid Conſtitutions, by the Uneaſineſs it creates in the Stomach.

CHAP. III.

Obſervations drawn from the Nature and moſt ſimple Analyſis of vegetable Subſtances.

PROP. I.

ALL Animals are made immediately or mediately of Vegetables, that is by feeding on Vegetables;

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* *Vide* Philoſophical Tranſactions.

or on Animals that are fed on Vegetables, there being no Proceſs in *infinitum*.

PROP. II.

Vegetables are proper enough to repair Animals, as being near of the ſame ſpecifick Gravity with the Animal Juices, and as conſiſting of the ſame Parts with Animal Subſtances, Spirit, Water, Salt, Oil, Earth; all which are contain'd in the Sap they derive from the Earth, which conſiſts of Rain-Water, Air, putrified Juices of Plants and Animals; and even Minerals, for the Aſhes of Plants yield ſomething which the Loadſtone attracts.

PROP. III.

The Sap is diverſify'd, and ſtill more and more elaborated and exalted, as it circulates through the Veſſels of the Plant.

The Sap when it firſt enters the Root, and is not ſubdued by the Action of the Plant, retains much of its own Nature, and has not much of the Vegetable; being earthy, watery, poor, and ſcarce * oleaginous. The Sap after it has enter'd the Root is more and more elaborated, as it paſſeth into the Stem, Branches, Leaves, Flowers, Fruit and Seeds. The Juice of the Stem is like the Chyle in an Animal Body, not ſufficiently concocted by Circulation, and is commonly ſubacid in all Plants. This Juice is yielded in great Plenty by Inciſion, in ſome Plants. The Juices of the Leaves are, *Firſt*, That obtain'd by Expreſſion, which is the nutritious Juice render'd ſomewhat more oleaginous; from this Juice proceeds the difference of the Taſte of the Leaves of Plants. *Secondly*, Wax which is ſcrap'd off by the Bees, and is a vegetable Subſtance. *Thirdly*, Manna, which is an eſſential ſaccharine Salt, ſweating from the Leaves of moſt Plants.

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* *Oily.*

The Juices of the Flowers are, *Firſt*, The expreſs'd Juice, a little more elaborated. *Secondly*, A volatile Oil and Spirit, wherein the particular Smell of the Plant reſides. *Thirdly*, Honey, exuding from all Flowers, the bitter not excepted; this is gather'd by the Bees, and ſuck'd in by their Trunks into their Stomachs. The Juice of the Fruit is ſtill the Juice of the Plant, more elaborated. The Juice of the Seed is an eſſential Oil or Balm, deſign'd by Nature to preſerve the Seed from Corruption. The Bark contains, beſides the common Juice, an oily Juice, which ſweats out of diverſe Plants; when this Juice is in greater plenty than can be exhal'd by the Sun, it renders the Plant ever green. This Oil farther inſpiſſated by Evaporation turns by degrees into Balm, Pitch, Roſin, *&c.* Beſides all theſe, there is a peculiar Juice in each Species, not reducible to Water, Oils, Balſam, which may be call'd the Blood of the Plant. Thus ſome Plants upon breaking their Veſſels yield a milky Juice, others a yellow, of peculiar Taſtes and Qualities.

1. Theſe are the Ingredients of Plants, before they are prepared by Cookery: Hence it follows, that he who eats a whole raw Plant, or the expreſs'd Juice of it, takes in a greater variety of Subſtances, than he who feeds on the ſame Plant prepar'd, or on ſome of the Parts of it; for all Plants have the moſt of the forementioned Ingredients, at leaſt in ſmall Quantities.

2. Vegetables differ from Foſſils, and Animals, in that being burnt to Aſhes they yield a fix'd Alkaline Salt, which, in thoſe of a ſharp Scent and pungent Taſte, as Muſtard, Onions, *&c.* is in a very ſmall Quantity.

3. The Effects of vegetable Subſtances upon Human Bodies, are more various than thoſe of Animal Subſtances; and the Mechaniſm of Plants ſeems to be more various than that of Animals, for the ſame Plant produceth as great a variety of Juices, as there is in the ſame Animal, and different Plants a greater variety, and yet the Aliment of Plants is nearly one uniform Juice; for from the ſame Soil may be produc'd a great variety of Plants, whereas Animals live upon very different ſorts of Subſtances; both Mechaniſms are equally curious, from one uniform Juice to extract all the variety of vegetable Juices, or from ſuch variety of Food to make a Fluid very near uniform, the Blood of an Animal.

4. The ſpecifick Qualities of Plants reſide in their native Spirit, Oil, and eſſential Salt; for the Water, fix'd Salt, and Earth, appear to be the ſame in all Plants.

The Effects of the foremention'd Ingredients of Plants are as follow: Vegetable Salts are capable of reſolving the coagulated Humours of a Human Body, and of attenuating, by ſtimulating the Solids, and diſſolving the Fluids: Salts likewiſe promote Secretions; Oils relax the Fibres, are Lenient, Balſamick, and abate Acrimony in the Blood. It is by virtue of this Oil, that Vegetables are nutrimental, for this Oil is extracted by Animal Digeſtion as an Emulſion, and abounds moſt in Plants of full Growth, and when the Salts and Water are in leaſt abundance. Aromatick Plants, tho' they abound with Oil, yet it is not ſoft and nutritious; but as it is mix'd with a Spirit, is too heating.

The volatile Salt and Spirit of Vegetables is penetrating, heating, and active, contrary to the Properties of Acids. The Balſams of Plants contain a volatile Salt; ſuch Balſams, when depriv'd of their Acids, change into Oils. Wax conſiſts of an acid Spirit of a nauſeous Taſte, and an Oil, or Butter, which appears white: This Oil is emollient, laxative, and * Anodyne.

Honey is the moſt elaborate Production of the Vegetable Kind, being a moſt exquiſite vegetable Sope, reſolvent of the Bile, Balſamick and Pectoral. Honey contains no inflammable Spirit, before it has felt the Force of Fermentation; for by Diſtillation it affords nothing that will burn in the Fire.

The Fruits of moſt Vegetables are likewiſe Sopes; all Sopes (which are a Mixture of Salt and Oil) are attenuating and deobſtruent, reſolving viſcid Subſtances; for mere Water diſſolves nothing but Salts: but as the Subſtance of Coagulations is not merely Saline, nothing diſſolves them but what penetrates and relaxes at the

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* *Abating Pain.*

the ſame time, that is, a Sope, or a Mixture of Oil and Salt.

6. Taſtes are the Indexes of the different Qualities of Plants, as well as of all ſorts of Aliment: Different Taſtes proceed from different Mixtures of Water, Earth, Oil, and Salt; but chiefly from the Oil and Spirit, mix'd with ſome Salt of a peculiar Nature. A muriatick or briny Taſte ſeems to be produced by a Mixture of an acid and alkaline Salt; for Spirit of Salt and Salt Tartar mix'd, produce a Salt like Sea Salt. Bitter and Acrid differ only by the ſharp Particles of the firſt, being involv'd in a greater Quantity of Oil than thoſe of the laſt. Acid or Sour proceeds from a Salt of the ſame Nature, without a Mixture of Oil; in auſtere Taſtes, the oily Parts have not diſentangled themſelves from the Salts and earthy Parts; ſuch is the Taſte of unripe Fruits. In ſweet Taſtes the acid Particles ſeem to be ſo attenuated,

nuated, and diſſolv'd in the Oil, as to produce only a ſmall and grateful Titillation. In oily Taſtes the Salts ſeem to be intirely diſentangled.

Vegetables have very different Effects on Human Bodies, as they contain acid or alkaline Salts, and are to be us'd according to the different Conſtitution of the Body at that time, as will appear by what will be ſaid afterwards. All the * Tetrapetalous ſiliquoſe Plants are Alkaleſcent.

PROP. IV.

Mankind take as Aliment all the Parts of Vegetables, but their propereſt Food of the vegetable Kingdom, is taken from the farinaceous, or mealy Seeds of ſome † Culmiferous Plants, as Oats, Barley, Wheat, Rice, Rye, Mays, Panick, Millet;

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* *Having Flowers with four Leaves and Pods.*

† *Having long Stems and Heads.*

or of ſome of the Siliquoſe Leguminous, as Peaſe, Beans, *&c.* Thoſe as they are Seeds (by what was ſaid, Prop. III.) contain the moſt elaborate part of the Plant, are oily, and therefore proper to make the Animal Emulſion of Chyle; and their Oil is not highly exalted, and hot as that of acrid and aromatical Plants, but mild and benign to human Bodies.

Barley is emollient, moiſtning and expectorating. Oats have ſome of the ſame Qualities. Barley was choſen by *Hippocrates* as proper Food in inflammatory Diſtempers. Rice is the Food of, perhaps, two Thirds of Mankind; it is moſt kindly and benign to Human Conſtitutions, proper for the Conſumptive, and ſuch as are ſubject to Hæmorrhages. Next to Rice is Wheat, the Bran of which is highly Aceſcent and Stimulating; therefore the Bread that is not too much purged from it, is more wholeſome for ſome Conſtitutions. Rye is more acid, laxative, and leſs nouriſhing than Wheat. Millet is diarrhoetick, cleanſing, and uſeful in Diſeaſes of the Kidneys. Panick affords a ſoft demulcent Nouriſhment, both for * Granivorous Birds, and Mankind. Mays affords a very ſtrong Nouriſhment, but more viſcous than Wheat. Peaſe being depriv'd of any aromatick Parts, are mild, and demulcent in the higheſt degree; but being full of aerial Particles, are flatulent when diſſolv'd by Digeſtion. Beans reſemble them in moſt of their Qualities. All the foremention'd Plants are highly aceſcent, except Peaſe and Beans.

The mealy Parts of the forementon'd Plants diſſolv'd in Water, make too viſcid an Aliment to be conſtantly us'd, and juſtly condemn'd by *Hippocrates*: Therefore Mankind have found the means to make them more eaſy of Digeſtion, by fermenting, and making ſome of them into Bread, which is the lighteſt and propereſt Aliment for Human Bodies, Leaven, by its acid Salt, dividing the mucous and oily Parts of the Meal.

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* *That eat Grains.*

The next ſort of Subſtances which Mankind feed on, are Fruits of Trees, and Shrubs; theſe all contain Water or Phlegm, Oil much elaborated, and an eſſential Salt; upon the different Mixtures of theſe Ingredients, depend their different Qualities, by which they are ſharp, ſweet, ſour or ſtyptick. Of Fruits, ſome are Pulpy, others contain'd within a hard Shell; which laſt are indeed the Seeds of the Plants to which they belong, and contain a great deal of Oil, entangled with earthy Parts and Salts, which oftentimes make them hard of Digeſtion, and paſs the Alimentary Duct undiſſolv'd. There are other Fruits which contain a great deal of cooling viſcid Juice, combin'd with a nitrous Salt, which ſometimes makes them offenſive to the Stomach; ſuch are many of the low pomiferous Kind, as Cucumbers, Pompions; tho' amongſt thoſe, Melons, when good, have a rich Juice, and ſomewhat aromatick; they are diuretick, and there are Inſtances of their having thrown People into bloody Urine.

Of Alimentary Leaves, the Olera, or Pot-Herbs afford an excellent Nouriſhment; amongſt thoſe are the Cole or Cabbage Kind, emollient, laxative, and reſolvent, alkaleſcent, and therefore proper in Caſes of Acidity. Red Cabbage is reckon'd a Medicine in Conſumptions and Spittings of Blood. Amongſt the Pot-Herbs are ſome * lacteſcent Plants, as Lettuce, Endive, and Dandelion, which contain a moſt wholeſome Juice, re-

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* *Containing a milky Juice.*

ſolvent of the Bile, anodyne and cooling, extremely uſeful in all Diſeaſes of the Liver. Artichokes contain a rich nutritious ſtimulating Juice.

Of the Stems of Plants, ſome contain a fine aperient Salt, and are diuretick and ſaponaceous; as Aſparagus, which affects the Urine with a fœtid Smell (eſpecially if cut when they are white) and therefore have been ſuſpected by ſome Phyſicians as not friendly to the Kidneys; when they are older, and begin to ramify, they loſe this Quality; but then they are not ſo agreeable.

Of Alimentary Roots, ſome are pulpy, and very nutricious, as Turnips, Carrots; theſe have a fattening Quality, which they manifeſt in feeding of Cattle. There are other Roots which contain an acrid volatile Salt, as Onions, Garlick, Leeks, Radiſhes, the mildeſt of theſe is Celery. Thoſe ſorts of Roots are alkaleſcent and heating, and therefore proper in Caſes of Acidity. The Fungus Kind, as Muſhrooms or Truffles, afford an alkaline Salt, and much Oil; ſome of them being poiſonous make the others ſuſpicious, if taken in too great Quantities.

There are many vegetable Subſtances uſed by Mankind, as Seaſonings, which abound with a highly exalted aromatick Oil, as Thyme, Savoury, Marjoram, Baſil, Spices: Thoſe are heating, and the moſt of them hard of Digeſtion. The moſt friendly to the Stomach, is Fennel. Muſtard, which is us'd in Seaſoning, abounds with a moſt pungent Salt and Oil, extremely active and heating. Sugar is an eſſential Salt of a Plant, combin'd with an Oil, which renders it inflammable; and therefore it is ſaponaceous, reſolvent, and cleanſing.

PROP. V.

To give an Account of the Ingredients into which Vegetables reſolve themſelves by the moſt ſimple Operations of Cookery and Chymiſtry.

The Operations of Cookery and Chymiſtry fall much ſhort of the vital Force of an Animal Body: No Chymiſt can make Milk or Blood of Graſs; yet it gives ſome Light to this Subject, to ſhew into what Parts Vegetables reſolve themſelves by ſuch ſimple Operations, as barely ſeparate their Parts without confounding or deſtroying them.

The two Operations already mention'd, *viz.* making an Emulſion and vegetable Putrefaction reſemble Animal Digeſtion the moſt.

1. In making an Emulſion, the oily Parts of Vegetables diſſolve into a white Liquor, reſembling Chyle.

Our vegetable Food conſiſts of mealy Seeds, Fruits, Bread, *&c.* upon which the Teeth and Jaws act as the Peſtle and Mortar; the Spittle, Bile, pancreatick Juice, *&c.* are the Menſtruum, inſtead of the Water, which the Chymiſt employs; the Stomach and Inteſtines are the Preſs; and the lacteal Veſſels the Strainers, to ſeparate the pure Emulſion from its Fœces. The Chyle is white, as conſiſting of Salt, Oil, and Water of our Food, much levigated or ſmooth. This likewiſe conſtitutes the Whiteneſs of Emulſions.

2. Vegetable Putrefaction (by what has been mention'd before) turns vegetable Subſtances into an animal Nature.

3. Amongſt the Ingredients of Vegetables, that which conſtitutes the moſt ſpirituous and fragrant Part of the Plant, is what paſſeth by Perſpiration, and exhales by the Action of the Sun. This is as it were the

preſiding Spirit of the Plant, from which it draws its peculiar Flavour, and is the moſt active Principle in the Vegetable. Thus every Plant has its Atmoſphere, which have very various Effects on thoſe who ſtay near them, producing Head-achs, Sleep, Fainting, Vapours; and others, a great Refreſhment of the Spirits. It is reported, that in *Brazil* there are Trees which kill thoſe that ſit under their Shade in a few Hours. This fragrant Spirit is obtain'd from all Plants which are in the leaſt aromatick, by a cold Still, with a Heat not exceeding that of Summer.

4. If to a Plant you pour hot Water, and let it ſtand a ſufficient time, the Liquor ſtrain'd is call'd the Infuſion of the Plant; if the Plant be boil'd in the ſame Water, the ſtrain'd Liquor is call'd the Decoction of the Plant. The Infuſions and Decoctions of Plants contain the moſt ſeparable Parts of the Plants, and convey not

only their nutritious but medicinal Qualities into the Blood. This is plain by many Experiments. The Infuſion of *Caſſia Fiſtularis* makes the Urine green. The Infuſions and Decoctions of Rhubarb and Saffron, will, in a Quarter of an Hour tinge the Urine with a high Yellow.

5. The moſt oily Parts are not ſeparated by a ſlight Decoction, till they are diſentangled from the Salts; for if what remains of the Subject, after the Infuſion and Decoction, be continu'd to be boil'd down with the Addition of freſh Water, a fat, ſapid, odorous, viſcous, inflammable, frothy Water will conſtantly be found floating a-top of the boiling Liquor, which being ſcumm'd off, and gently dry'd, will flame away in the Fire. This Liquor is a kind of Sope conſiſting of the Oil and Salt of the Plant.

6. Infuſions and ſlight Decoctions contain more of the Speci-

fick Qualities of the Plant, than theſe which are more violent; for by a ſtrong Decoction ſome part of the Taſte and Smell fly off every Moment.

7. The Infuſion and Decoction, prepar'd as before, being evaporated to a thicker Conſiſtence, according to the ſeveral Degrees of Thickneſs, paſſeth into a Jelly, * Defrutum, Sapa, Rob, Extract, which contain all the Virtues of the Infuſion or Decoction, freed only from ſome of the watery Parts.

8. The utmoſt Force of boiling Water is not able to deſtroy the Structure of the tendereſt Plant. The Lineaments of a white Lily will remain after the ſtrongeſt Decoction.

9. The Extract obtain'd by the former Operation, burnt to Aſhes, and thoſe Aſhes boil'd in Water, and filtrated, yield a fiery Salt.

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* *The expreſs'd Juice, boil'd to a thick Conſiſtence.*

10. The greater Quantity of volatile Salt any Plant contains, which is the Caſe of the more pungent in Taſte and Odour, the leſs it affords of this fix'd Alkali: Thoſe fix'd alkaline Salts do not pre-exiſt in the ſame Form in the Plant; for acid Plants, as Sorrel, will afford by this Operation an alkaline Salt. Thoſe Salts grow ſtill more fiery and alkaline by a greater degree of Heat. Of all the eſſential Salts of Plants, that which is in moſt common Uſe in Aliment, is Sugar, which rather diſſolves Phlegm than increaſeth it; for it grows tenacious only by long boiling: It is a Sal Oleoſum, for it is both ſoluble in Water, and fuſible in Fire.

11. Another manner of preparing Vegetables, is by expreſſing their Juices. Thoſe expreſs'd Juices contain the true eſſential Salt of the Plant; for if they be boil'd into the Conſiſtence of a Syrup, and ſet in a

cool Place, the eſſential Salt of the Plant will ſhoot upon the ſides of the Veſſels. Thoſe eſſential Salts of Plants differ, according to the Plant unto which they belong, but are reduc'd into three Claſſes. *Firſt*, Thoſe of acid, aſtringent, auſtere Vegetables, as of unripe Fruits, which reſemble the Tartar. *Secondly*, Thoſe of ſucculent watery Plants, as Endive, Cichory, which afford a fine nitrous kind of Salt, ſoluble in Water, and very cooling. *Thirdly*, Thoſe from oily, aromatick, and odoriferous Vegetables, which will hardly afford any, till their Oils be extracted from them: From hence it appears, that the expreſs'd Juices of Vegetables, not filtrated very clear, contain their whole Specifick Virtues.

12. In the Preparations of Cookery, the moſt volatile Parts of Vegetables are deſtroy'd; if any of them are retain'd, it is in Decoctions which are made *in Balneo*.

Decoctions, when we take the Liquor, contain the Specifick Virtues of the Plants; when we feed upon the Plant, it makes their ſolid Parts more tender, and deprives them of a great deal of their more ſubtile Oils.

13. The vaſcular and ſolid Parts of Plants are incapable of any Change in the Animal Body; for the Remainder of a ſtrong Decoction, held over a clear Fire, will burn to Aſhes, which is true Elementary Earth. The fibrous and ſolid Parts of Plants, paſs unalter'd through the Inteſtines, and ſometimes by ſticking there, occaſion great Diſorders. Grains and Nuts paſs often through Animals, unalter'd. The Excrements of Horſes are nothing but Hay, and, as ſuch, combuſtible.

14. Vegetable Subſtances contain a great deal of Air, which, as they are diſſolv'd in the Alimentary Duct, expands itſelf, producing all the Diſorders of Flatulency.

15. There are other Preparations of Vegetables by Fermentation, whereby they are wrought up into ſpirituous Liquors, which may be call'd by the general Name of Wines: Such fermented Liquors have quite different Qualites from the Plant itſelf; for no Fruit, taken crude, has the intoxicating Quality of Wine.

CHAP. IV.

Obſervations from the Nature and moſt ſimple Analyſis of Animal Subſtances.

AN Animal, conſider'd in its material Part, cannot well be defin'd from any particular organical Part, which in ſome Species are wanting, in others, are more than one; nor from its locomotive Faculty, for there are ſome which adhere to Rocks, and other Places. The Characteriſtick of an Animal, is to take its Aliment by a voluntary Action, by ſome Aperture of the Body, which may be call'd a Mouth, and to convey it into another call'd the Inteſtines, into which its Roots are implanted, whereby it draws its Nouriſhment much after the manner of Vegetables, only a Vegetable has its Root planted without itſelf, and an Animal its Root within itſelf. A Fœtus in the Womb is indeed nouriſh'd like a Plant, but afterwards by a Root planted within itſelf; perhaps too an Animal may be diſtinguiſh'd from a Vegetable, in that its Juices move through the Canals by a projectile Motion.

PROP. I.

To give a ſhort Account of the conſtituent Parts of Animal Subſtances.

An Animal conſiſts of ſolid and fluid Parts, unleſs one ſhould reckon ſome of an intermediate Nature, as Fat, and Phlegm.

1. The Solids ſeem to be Earth, bound together with ſome Oil; for if a Bone be * calcin'd ſo, as the leaſt Force will crumble it, being immers'd in Oil, it will grow firm again.

The laſt Animal Solids are Earth, in its greateſt Simplicity; for the Chymiſts make Veſſels of Animal Subſtances calcin'd, which will not vitrify in the Fire; for all Earth, which hath any Salt or Oil in it, will turn to Glaſs.

2. The Fluids of Animals are more crude, and reſemble thoſe of Vegetables, as they are nearer the Root of the Animal: Thus Chyle may be ſaid to be a vegetable Juice in the Stomach and Inteſtines, and pour'd upon Blood, it ſeems like Oil; as it paſſeth into the Lacteals, it grows ſtill more Animal; and when it has circulated often with the Blood, it is entirely ſo.

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* *Burnt to a Cinder.*

3. Blood is the moſt univerſal Juice in an Animal Body, and from which all the reſt are deriv'd; the red part of it differs from the Serum, the Serum from the Lymph, the Lymph from the nervous Juice, and that from the ſeveral other Humours that are ſeparated in the Glands.

4. Animal Subſtances differ from Vegetable, in two Things. *Firſt*, In that being reduc'd to Aſhes, they are perfectly inſipid; all Animal Salts being volatile, fly off with great Heat. *Secondly*, In that there is no ſincere Acid in any Animal Juice.

5. And yet the Parts of the one are tranſmutable into the nutritious Juice of the other. An Animal can nouriſh a Plant, and a Plant an Animal, by which it ſeems probable that Vegetables have the Power of converting the alkaline Juices of Animals into Acids; as Animals have the Power of converting the acid Juices of Plants into alkaline Subſtances.

ſtances. From the two fore-mention'd Differences of Vegetable and Animal Subſtances, it follows. *Firſt*, That all animal Diet is alkaleſcent, or anti-acid. *Secondly*, That animal Subſtances, containing no fixt Salt, want the Aſſiſtance of thoſe for Digeſtion, which preſerve them both within and without the Body from Putrefaction.

6. The conſtituent Parts of Animals are, *Firſt*, Earth. *Secondly*, A peculiar Spirit analogous to that of Plants. *Thirdly*, Water. *Fourthly*, Salts. *Fifthly*, Oil.

7. The Earth, as was before obſerv'd, is ſincere and immutable.

8. The Spirit is an oily Subſtance, ſo attenuated, as to become volatile. This Spirit ſeems to be diſtinguiſh'd in every Species, and Individual; a Blood-Hound will follow the Tract of the Perſon he purſues, and all Hounds, the particular Game they have in Chaſe; and the Faculty by

which they diſtinguiſh particular Men, ſeems to be analogous to ours of diſtinguiſhing the different Species of Vegetables by their Scent.

9. Therefore, ſince the Animals of the wild Kind have their Scent, and conſequently this preſiding Spirit more high, it is probable that their Juices are more exalted in proportion.

10. Water is the chief Ingredient in all the Animal Fluids and Solids; for a dry Bone, diſtill'd, affords a great Quantity of inſipid Water. Therefore Water ſeems to be proper Drink for every ſort of Animal.

11. The Juices of Animals conſiſt of Water impregnated with Salts of a peculiar Nature (excepting Chyle, which, as was ſaid before, may be reputed a vegetable Juice, and often contains Acids.) Theſe Salts are neither acid, nor perfectly volatile; for, in the Evaporation of Human Blood, by a gentle Fire, the Salt will

not riſe, but only the Spirit and Water, not perfectly fix'd; for Human Blood, calcin'd, yields no fix'd Salt, nor is it a *Sal Ammoniac*; for that remains immutable after repeated Diſtillations; and Diſtillation deſtroys the ammoniacal Quality of animal Salts, and turns them alkaline; ſo that it is a Salt neither quite fix'd, nor quite volatile, nor quite acid, nor quite alkaline, nor quite ammoniacal; but ſoft and benign; approaching neareſt to the Nature of a *Sal Ammoniac*. The elementary Salts of Animals are not the ſame, as they appear by Diſtillation; theſe Alterations being made by Fire. Thoſe Salts are of a peculiar, benign, mild Nature, in healthy Perſons, who have a vital Force to ſubdue all the ſapid Subſtances which they feed upon; but, in ſuch who have not that vital Force, or commit ſome Error in their Diet, theſe Salts are not ſufficiently attenuated, and retain their original Qualities;

lities, which they diſcover in * Cachexies, Scurvies of ſeveral kinds, and other Diſtempers; the Cure of which chiefly lies in the Choice of Aliment with Qualities oppoſite to the Nature of theſe Salts.

12. Animal Oil is various, according to Principles inherent in it, but being freed from the Earth, Salts, *&c.* it is a ſimple unactive Principle, and the ſame in all Animals.

13. Animal Subſtances are more eaſily aſſimilated into animal Subſtances; and therefore it ſeems probable that they are more nouriſhing to Human Bodies than Vegetable.

The Nature of animal Food muſt depend upon the Nature, Age, Diet, and other Circumſtances of the Animal we feed upon.

Animal Juices, as well as Vegetable, are in their greateſt Perfection when the Animal is full grown; young Animals participate of the Nature of their tender Aliment, as Sucklings of Milk.

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* *Ill Habits of Bodies.*

Animal Nouriſhment differs conſiderably as the Animal is terreſtrial, amphibious, or aquatick. Fiſhes contain more of animal Salts and Oil, for they corrupt ſooner than terreſtrial Animals; ſome Fiſhes, as the Thornback, when dry'd, taſte of *Sal Ammoniac.*

The muſcular Fibres of Fiſhes are generally more ſmall and tender than thoſe of terreſtrial Animals, and their whole Subſtance more watery. Some Fiſhes, as Whitings, can be almoſt entirely diſſolv'd into Water.

From which Qualities, a Diet of ſome Fiſh is more rich and alkaleſcent that that of Fleſh, and therefore very improper for ſuch as practiſe Mortification. The Inhabitants of Sea-Port Towns are generally prolifick.

The Oils with which Fiſhes abound often turn rancid, and lie heavy on the Stomach, and affect the very Sweat with a rancid Smell, which is found to be true in ſome Places, where the Inhabitants live entirely upon Fiſh.

Notwithſtanding the redundant Oil in Fiſhes, they do not increaſe Fat ſo much as Fleſh, by reaſon of their watery Quality.

Water-Fowl abound with the ſame rancid Oil as Fiſh.

Fiſh being highly alkaleſcent wants to be qualified by Salt and Vinegar.

14. Another Difference of the Fleſh of Animals depends upon the Difference of their Food, from which it is not hard to determine their Qualities, conſider'd as Aliment; and the Fleſh of Animals of the ſame Species is more or leſs delicate and nouriſhing, according to their Food. Thoſe Animals that live upon other Animals have their Fleſh and Juices more alkaleſcent than thoſe that live upon Vegetables.

15. The Difference of the Qualities of the Fleſh of the ſame Species, depends upon the manner of living of the Animal.

Abſtracting from other Conſiderations, the moſt healthy Animal affords the beſt Aliment, and the caſtrated, than thoſe that are not ſo.

An Animal that feeds itſelf, takes the moſt proper Food in the propereſt Quantities (if it has Plenty enough) has better Air and more Exerciſe; all which contribute to make the Animal more healthy; for theſe Reaſons *Hippocrates* commends the Fleſh of the wild Sow above the tame; and no doubt, but the Animal is more or leſs healthy, according to the Air it lives in; the Fleſh of the ſame Species differs very much, as the Animal lives in Marſhes or Mountains. The wild Kinds of Animals having more Exerciſe, have their Juices more elaborated and exalted; but for the ſame Reaſon the

Fibres are often harder, eſpecially when old. For this Reaſon, perhaps, the Roe-buck is the fineſt of the Veniſon Kind. This Rule, in ſome meaſure, holds true with Fiſhes; Sea-Fiſh living in an Element more agitated, and River-Fiſh are better than thoſe in Ponds.

Eels, for want of Exerciſe, are fat and ſlimy; for this Reaſon, perhaps, Fiſh without Fins and Scales were forbid the *Iſraelites*.

As the Fibres of fat Animals are often more tender and moiſt than thoſe of lean, they are more coveted by Mankind; and tame Fowls offering themſelves, as it were, to Mankind, ſeem to be their natural Food.

16. The Juices of the ſame Animal in Decoctions are often more nouriſhing, when the ſolid Parts are not ſo good, and the Broth made of grown Animals more nouriſhing than that of young; for of the Parts

of the ſame Animal, the muſcular Fleſh with the nervous Parts afford the beſt Nouriſhment, as containing the moſt ſpirituous Parts. The Difference of the muſcular Fleſh, taken in Subſtance, depends upon the Hardneſs, Tenderneſs, Moiſture, or Drineſs of the Fibres. The ſeveral Parts of the ſame Animal differ likewiſe in their Qualities; their Livers are tender, and by the Juice which they contain are eaſily corruptible; all the Parts, and eſpecially the Glands, partake of the Qualities and Juices which they prepare; the Inteſtines, and Parts about the Meſentery, are relaxing; the Bones and Horns contain a great deal of volatile Salt; the Feet, conſiſting of Tendons and Ligaments, contain a viſcous Nouriſhment proper where ſuch is indicated. The Blood of Animals contains Salts which makes it laxative; it is not eaſy of Digeſtion. Stall fed Oxen, and cramm'd

Fowls are often diſeas'd in their Livers.

PROP. II.

To give an Account of the Nature and moſt ſimple Analyſis of animal Fluids and Solids.

The propereſt Subjects for ſuch an Enquiry are, *Firſt*, The Fluid, which begins to receive an animal Nature without having perfectly attain'd to it, and approaches neareſt to the Nature of Chyle, *viz.* Milk. *Secondly*, That which having attain'd an animal Nature by Circulation, is noxious, if retain'd in the Animal, as Urine. *Thirdly*, An animal Fluid, no ways excrementitious, mild, elaborated, and nutritious, and from which every Part of a perfect Animal can be form'd, as the White of an Egg. *Fourthly*, The nutritious Juice of a healthy Human Body, which reſembles the White of an Egg, in moſt of its Qualities. *Fifthly*, The Bones.

1. None of the animal Fluids above mention'd, in a ſound State, is either acid, or alkaline. *Firſt*, If to any Quantity of warm new Milk you pour Oil of Tartar *per deliquium*, or any other Alkali, no Effervеſcence will follow, but the whole Body of the Liquor will remain at reſt, though it appear ſomewhat thinner. To another Quantity of warm Milk pour Spirit of Nitre, or any ſtrong Acid, and again no Motion nor Ebullition will appear, only the Milk preſently after will become thicker than it was; mix together the two Parcels of Milk, upon which the Experiments were made, and a great Effervеſcence will immediately ariſe; from whence the Propoſition is evident, that Milk is neither acid nor alkaline; but when there is an Acid and Alkali mix'd in it, they manifeſt themſelves by their Conflict: Milk doth not diſcover itſelf

ſelf to be acid or alkaline by Trials with the Syrup of Violets.

The ſame Experiments hold in two Parcels of the Urine of a healthy Perſon, before it has ſtood twelve Hours.

The ſame Experiments ſucceed on two Parcels of the White of an Egg, only it grows ſomewhat thicker upon mixing with an Acid. The Serum of the Blood ſtands the ſame Trials of Acids and Alkalis.

2. The Milks of ſeveral Animals differ but very little as to their ſenſible Qualities; Womens Milk is the ſweeteſt; as to their nutritious Qualities, they ſeem to ſtand in the following Order: That of Women, Aſſes, Mares, Goats, Sheep, Cows. The Milk of Animals which make hard Dung, is moſt nouriſhing.

3. Milk, ſtanding ſome time, naturally ſeparates into an oily Liquor, call'd Cream; and a thinner, blue, and more ponderous Liquor, call'd Skimm'd Milk, neither of which Parts

is naturally acid or alkaline (but may turn ſo by ſtanding for ſome time) nor in the leaſt acrimonious; for being let fall into the Eye, they cauſe no Pain or Senſation of Sharpneſs. Milk is a kind of Emulſion, or white animal Liquor, reſembling Chyle, prepared chiefly from Vegetables, and after it has been mix'd with the animal Juices of the Spittle, Bile, pancreatick Juice, *&c.* is eaſily ſeparated from them again in the Breaſts.

4. It differs from a vegetable Emulſion by coagulating into a curdy Maſs with Acids, which Chyle and vegetable Emulſions will not: Acids mix'd with them, precipitate a tophaceous chalky Matter, but not a cheeſy Subſtance; for, as was before obſerv'd, if you pour Spirit of Nitre into any Quantity of boiling new Milk, no Conflict or Efferveſcence will follow, but the Liquor divides itſelf into Curd and Whey, which Whey turns ſpontaneouſly acid, and the Curd will

turn into Cheeſe, as hard as a Stone; which ſhews that the moſt ſolid Parts of Animals may be made of Milk. The ſame Effect of turning Milk into a hard Curd, may happen in a Human Body that abounds with Acids.

5. Milk drawn from a ſound Animal, fed on Vegetables, ſtanding in a Heat equal to that of a Man in Health, will ſoon ſeparate itſelf into a Cream, and a more ſerous and ponderous Liquor, which after twelve Days attains to the higheſt Degree of Acidity. But if the Milk be drawn from ſome Animals that feed only upon Fleſh, that have faſted long, are feveriſh, or have undergone hard Labour, it will be more apt to turn rancid, and putrify, than turn acid, acquiring firſt a ſaline Taſte, which is a Sign of Putrefaction, and then it will turn into an * Ichor. The Milk of Animals in hot Countries is more apt to putrify, than of thoſe in cold.

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* *A watery putrid Humour.*

6. If to a Quantity of boiling new Milk, you add by degrees any fix'd Alkali, as Salt of Tartar, or Oil of Tartar *per deliquium*, there will be a lighter *Coagulum* form'd than by an Acid. The Milk, by boiling, will change into a yellow Colour, and run through all the intermediate Degrees, till it ſtops in an intenſe Red. The ſame thing happens by the alkaline Powers of the Body; for when an Animal that gives Suck turns feveriſh, that is, its Juices more alkaline, the Milk turns from its native genuine Whiteneſs to Yellow; to which the Suckling has an Averſion: This was the Caſe (as the learned *Boerhaave* tells us) of the Cows of *Holland*.

7. If a Nurſe ſhould abſtain from all acid Vegetables, from Wine, Malt-Drink, and feed only on Fleſh, and drink Water, her Milk, inſtead of turning ſour, will turn putrid and ſmell like Urine. An alkaleſcent Diet, except that of Water, is often the

Caſe of Nurſes in great Families; their Milk ſubjects the Child to Fevers. On the other hand, the Milk of poor People that feed upon an aceſcent vegetable Diet, ſubjects the Child to Diſeaſes, that depend upon Acidity in the Bowels, as Cholick: The Symptoms of ſuch a Conſtitution are a ſour Smell in their Fæces, ſour Belchings, Diſtenſions of the Bowels, and Paleneſs of the Fleſh. The Cure of both Diſeaſes is effected by a Change of Diet in the Nurſe, from Alkaleſcent to Aceſcent, or contrary ways, as the Caſe requires. The beſt Diet for Nurſes is a Mixture of both.

It follows likewiſe from the foregoing Obſervations, that no Nurſe ſhould give Suck after twelve Hours faſting; and that a Tendency to Yellow is an early Sign of a Fever in the Nurſe.

From the foremention'd Qualities of Milk, it appears to be a proper Diet for Human Bodies, where Acrimony is to be ſubdued or avoided; but not ſo proper where the Canals are obſtructed, it being void of all ſaline Quality. The Inconveniencies ariſing from its Curdling by the ſour Juices of the Stomach, may be overcome by time; all that it can do in Obſtructions is by Dilution.

8. Recent Urine, as it is neither acid nor alkaline, diſtill'd, yields a limpid Water, neither acid nor alkaline, ſaline nor inflammable, and what remains at the bottom of the Retort is neither acid nor alkaline; but being exhal'd to the Conſiſtence of a Syrup, paſſeth through all the degrees of Colours, Yellow, Red, Brown and Black; and this ſoapy Water being calcin'd, affords ſome Quantity of Sea-Salt, but only in the Caſe of the Animal's taking Sea-Salt with its Food.

9. Hence Sea-Salt paſſeth unalter'd through all the Strainers of a Human Body; the moderate Uſe of it is very proper to preſerve Bodies,

through which it paſſeth, from Corruption; it detergeth the Veſſels, and keeps the Fluids from Putrefaction. The Ancients gave the *Sal Gemmæ* in putrid Fevers.

All Human Urine, diſtill'd, affords a Water of a fœtid Odour, which that of Animals who feed on Vegetables, does not. The Urine of hard Drinkers and feveriſh Perſons, affords a Liquor extremely fœtid, but no inflammable Spirit; what is inflammable ſtays in the Blood, and affects the Brain. Great Drinkers commonly die Apoplectick.

10. The Urine is a Lixivium of the Salts that are in a Human Body, and the proper Mark of the State and Quantity of ſuch Salts; and therefore very certain Indications for the Choice of Diet may be taken from the State of Urine. Though the Salts of Human Urine be neither acid nor alkaline, theſe Salts may by the violent Motion of the Blood be turn'd alkaline, and

even corroſive; and when they begin to turn ſo, they affect the ſmall and tender Fibres of the Brain more ſenſibly than other Parts.

11. Recent Urine, diſtill'd with a great Heat, and dry Sand, will afford a volatile alkaline Salt; and after the ſame manner, the Heat of a Human Body, as it grows more intenſe, makes the Urine ſmell ſtill more ſtrong, and of a deeper Colour. But as long as thoſe alkaline Salts are carried off by Urine, the Brain and Nerves are leſs affected; but on the contrary, when in a Fever theſe Salts are left behind, that is, when the Urine turns pale, the Patient is in danger.

12. Recent Urine, diſtill'd with a fix'd Alkali, is turn'd into an alkaline Nature; whence it ſeems probable, that alkaline Salts taken into a Human Body, have the Power of turning its benign Salts into fiery and volatile; on which Account they ſeem

improper in inflammatory Diſtempers, where the Salts are already too much attenuated. *Hippocrates*, who found out this by Experience, order'd in ſuch a Caſe things of an acid Nature. In general, a high colour'd Urine indicates an acid cooling Diet; for it is certain an acid or alkaleſcent Diet makes a great Difference in the Salts of a Human Body.

13. The Rob or Sapa of Urine, diſtill'd with quick Lime, affords a fiery, but not an alkaline Spirit; and Lime-Water, given inwardly in the Caſe of a Diabetes, will bring the Urine from limpid Pale, to be of a higher Colour, which ſhews the Power of a Lixivium of quick Lime to unlock the Salts that are entangled in the viſcid Juices of ſome ſcorbutic Perſons.

14. Recent Urine will likewiſe cryſtallize by Inſpiſſation, and afford a Salt neither acid nor alkaline, but

of an active Nature, which may be properly call'd the Eſſential Salt of a Human Body. Urine becomes alkaline by Digeſtion, in a Heat not greater than that of a Human Body, and throws off a ſtony Matter to the Sides of the Veſſel.

15. The Urine long detain'd in the Bladder, as well as a Glaſs, will grow red, fœtid, cadaverous and alkaline. The Caſe is the ſame with the ſtagnant Waters of Hydropical Perſons, which at laſt produce a Drought and feveriſh Heat.

16. From hence very good Rules may be drawn for the Diet of Nephritick and Dropſical Perſons, that it ought to be ſuch as is oppoſite to and ſubdueth the alkaleſcent Nature of the Salts in the Serum of their Blood; thoſe manifeſt themſelves in the Urine, which, as was ſaid before, is the Lixivium of the whole Body. Sal Ammoniac may likewiſe be obtained from Urine, which is

neareſt to the Nature of an animal Salt.

17. The White of an Egg reſembles the nutritious Juice of an animal Body; from the White of an Egg every part of a perfect Animal is formed; for during the Incubation of the Hen, there is nothing of the Egg conſum'd but the White.

18. The White of an Egg is a viſcous, unactive, inſipid, inodorous Liquor, capable of mixing with Water; and ſo mild, that apply'd to the moſt ſenſible Part, the Eye, it cauſeth no Pain.

19. It is neither acid nor alkaline; for if the Juices of an animal Body were either, ſo as by the Mixture of the Oppoſites, to cauſe an Ebullition, they would burſt the Veſſels.

20. The White of an Egg gradually diſſolves by Heat, exceeding a little the Heat of a Human Body; a greater degree of Heat will thicken

it into a white, dark-colour'd, dry, viſcous Maſs; and this is the Caſe of the Serum of the Blood, upon which different degrees of Heat produce contrary Effects.

Attention ought to be had to this Maxim, in the Management of Diet, Exerciſe, and all outward and inward Application to Human Bodies: Warm Cataplaſms diſcuſs, but ſcalding hot may confirm the Tumor. Heat, in general, doth not reſolve and attenuate the Juices of a Human Body; for too great Heat will produce Concretions.

21. Spirit of Wine mix'd cold with the White of an Egg, coagulates it as much as boil'd Water, which ſhews that Spirit of Wine is an immediate Styptick, ſo that injected into the Veins, it is ſudden Death; and taken by the Mouth in great Quantities, is ſometimes ſudden, but always certain Death. Spirituous Liquors are ſo far from attenuating,

volatilizing, and rend'ring perſpirable the animal Fluids, that it rather condenſeth them, and hard'neth the Solids, and therefore properly us'd to hinder the Growth of young Animals; and this it will do by mere external Friction, thereby coagulating the Juices in the Extremities of the Veſſels, hardening and aboliſhing the Canals, and ſo increaſing their Reſiſtance againſt the Force of the influent Liquid, which would otherwiſe ſtretch them. This plainly demonſtrates the bad Effects of inflammable Spirits on Human Bodies.

22. The Water gain'd from the White of an Egg, by a gentle Diſtillation, is neither acid nor alkaline; but by a ſtrong Diſtillation it affords an alkaline Spirit, Salt, two kinds of Oil, and an Earth, which is another Inſtance of the Alterations great degrees of Heat cauſe in animal Subjects; and hence we may conclude, that volatile Salts never exiſt in

their own Form, in an animal Body; that the Heat requir'd to make them volatile, endangers the Life of the Animal; hence a highly alkaleſcent Diet, in hot Conſtitutions, muſt be hurtful and dangerous.

23. The White of an Egg will putrify and turn alkaline by Digeſtion; a ſingle Grain of this putrify'd Subſtance has operated like a Poiſon, cauſing Vomiting, and a Looſeneſs; the Antidote of this Poiſon is ſome acid Liquor, and ſuch are indeed indicated when the Juices of a Human Body verge to Putrefaction. The White of an Egg during Incubation, is diſſolv'd, but not, properly ſpeaking, putrify'd; for in ſuch a State it would be unfit for Nutrition.

24. It ſeems probable that the Bile in a Human Body, by ſtagnating, putrifies, cauſing a Cholera Morbus in the firſt Paſſages, and a Peſtilential Diſtemper when it mixeth with

the Blood. In ſuch a State of the Bile, the Aliment ought to be thin to dilute, demulcent to temper, or acid to ſubdue and deſtroy an alkaline Acrimony.

The nutritious Juice of a healthy Animal reſembles the White of an Egg, in moſt of its Qualities; but this nutritious Juice being a ſubtile Liquor, ſcarce obtainable from a Human Body, the Serum of the Blood is fairly ſubſtituted in its Place.

25. The Serum of the Blood ſtands the forementionʼd Trials, and diſcovers itſelf, to be neither acid nor alkaline, only Oil of Vitriol thickens, and the Oil of Tartar thins it a little.

26. The Serum of the Blood digeſted in a Heat not greater than that of a Human Body in Health, will gradually become thinner, begin to ſmell * cadaverous, and putrify;

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* *Like a Carcaſe.*

and at laſt, like the White of an Egg, turn to an alkaline Ichor, that ferments with Acids, and commited to Diſtillation, affords like the White of an Egg, an alkaline Salt. This ſhews the Effect of gentle Heat in diſſolving Coagulations; for even the viſcous Matter which lies like Leather upon the extravaſated Blood of Pleuritick People, may be diſſolv'd by a due degree of Heat.

27. When the Blood ſtagnates in any part of the Body, it firſt coagulates, then reſolves, and turns alkaline, putrid, and corroſive.

28. As the Serum of the Blood is reſolvable by a ſmall Heat, a greater Heat coagulates it ſo as to turn it horny like Parchment, but when it is throughly putrified, it will no longer concrete. The Blood of ſome Perſons who have dy'd of the Plague, could not be made to concrete, by reaſon of the Putrefaction already begun.

29. The Serum of Blood coagulates like the White of an Egg, with cold Spirit of Wine.

30. The Serum of the Blood is more ſaline than the White of an Egg, perhaps by the Salts taken in Nouriſhment; and has ſomething of a more fœtid urinous Scent.

31. The Serum of the Blood affords by Diſtillation an exceeding limpid Water, neither acid nor alkaline, which ſhews that the moſt ſubtile part of the Blood approacheth nearer to Water than any other Liquor, and that the Blood naturally contains no volatile Salt.

32. Theſe Experiments are to be made on the Blood of healthy Animals: It is poſſible in a lax and weak Habit of Body, where the Chyle is not throughly aſſimilated by Circulation, but floats on the Blood like Oil, that ſuch a Serum might afford quite other Contents, and perhaps even an inflammable Spirit, by rea-

ſon of the vegetable Nature of the Chyle.

33. The Serum of the Blood by a ſtrong Diſtillation affords a Spirit, or volatile alkaline Salt, and two kinds of Oil, and an Earth, which ſtill proves the Effect of Heat in Human Bodies, in changing the benign Salts into alkaline.

34. The Serum of the Blood is attenuated by Circulation, ſo as to paſs into the minuteſt Channels of an animal Body, and become fit Nutriment for it, but by the continual Attrition and Heat of ſome of its Particles, becomes ſharp and offenſive to the Body: Nature has provided the Kidneys to diſcharge them. Hence appears (as by Prop. VIII. Chap. II.) the continual Neceſſity of a freſh Recruit of Chyle, which like an Emulſion dilutes the Serum, as likewiſe the Miſchiefs ariſing from the Retention of Salts that ought to paſs by Urine, and the proper Indica-

tions for cooling and diluting in ſuch an alkaleſcent State of the Fluids.

35. It appears by Experiments made upon Bones, and other Animal Solids, that they conſiſt of the ſame Principles with the Fluids; a dry Bone diſtill'd affords a great Quantity of inſipid Water; after the Bones have undergone the Violence of the Fire, the Aſhes afford no fix'd Salt, only ſometimes in Animals that take Sea-Salt, there will be a very ſmall Proportion of that in the Aſhes.

36. The animal Fluids and Solids are reſolvable into the ſame Principles; and this is true not only of the Fluids and Solids themſelves, but likewiſe of all Preparations of them. The Gellies made of the Decoction of lean Fleſh and Bones in clear Water, are reſolvable into the ſame Principles as the Fleſh and Bones themſelves; and if theſe De-

coctions be repeated till the Water comes off clear, the Remainder yields no Salt by Diſtillation, and little Oil; therefore it is poſſible to extract the whole Virtues of animal Subſtances by Decoctions, but the gentleſt extract the moſt volatile and fineſt Parts after the Oil or Fat is ſeparated.

37. Preparations by Cookery of Fiſh or Fleſh ought to be made with regard to rectifying their moſt noxious and ſlimy Subſtances, and to retain thoſe that are moſt nutritious; ſuch Preparations as retain the Oil or Fat, are moſt heavy to the Stomach, which makes bak'd Meat hard of Digeſtion. Boil'd Fleſh is more moiſtening, and eaſier of Digeſtion than roaſted.

38. By Experiments of the Mixture of different Subſtances with the Serum of the Blood, it appears that all volatile Alkalis thin it, and Acids coagulate it. I ſaid, volatile Alkalis,

for the Serum being mix'd with an equal Quantity of Oil of Tartar *per deliquium*, will grow ſomewhat thicker, and an alkaline Vapour ariſeth from the Mixture; but the ſame Proportion of Spirit of Sal Ammoniac makes the Serum thinner, without cauſing any Alteration in the Scent or Colour.

39. Spirit of Vitriol pour'd to pure unmix'd Serum, coagulates it as if it had been boil'd. Spirit of Sea-Salt makes a perfect Coagulation of the Serum likewiſe, but with ſome different Phenomena from the former. The Spirit of Nitre produceth the ſame Effect.

The Serum, which is mix'd with an Alkali, being pour'd to that which is mix'd with an Acid, raiſeth an Efferveſcence; at the Ceſſation of which the Salts, of which the Acid was compos'd, will be regenerated.

40. Vinegar is an Acid of a very peculiar Nature, cooling, and yet

not coagulating; for Spirit of Vinegar gently dilutes the Serum of the Blood; and even the Oil of Tartar being pour'd to this Mixture cauſeth no Effervеſcence; tho' *Honiberg* ſays, that Spirit of Vinegar concentrated, and reduc'd to its greateſt Strength will coagulate the Serum.

41. The Mixture of the Solutions of Sea-Salt, Sal Gemmæ, Borax, Nitre, and Sal Ammoniac, cauſe no change of Colour in the Serum; but diſſolve its Texture a little, all except that of the Borax. *Glauber*'s Salt maketh a ſtrong Coagulation of the Serum, by reaſon of the Oil of Vitriol it contains.

42. All ſaponaceous Subſtances, which are a Mixture of Oil and alkaline Salt, thin the Blood, without cauſing any Effervеſcence: Spirit of Hartſhorn given in great Quantities will produce Hæmorrhages, which I have known by Experience, and

therefore is very improper in many Caſes. *Boerhaave,* in his Chymiſtry, ſays, That *Sal volatile oleoſum* will coagulate the Serum on account of the Alcahol or rectify'd Spirit which it contains.

43. The Tincture of Salt of Tartar, *viz.* a Preparation of the higheſt rectify'd Spirit of Wine, and the ſtrongeſt fix'd Alkali, preſerves the Serum in a neutral State; for the Spirit of Wine tends to coagulate, and the Alkali on the contrary to diſſolve it, whence it becomes neither thicker nor thinner.

44. What we take in common Aliment is endued with the abovemention'd Qualities in ſome degree. Therefore from theſe Experiments very uſeful Indications for Diet may be taken, according to the different State of the Blood, as will appear by what follows.

CHAP. V.

Of the Effects of different alimentary Subſtances upon the Fluids and Solids of a Human Body.

PROP. I.

Different ſorts of Aliments are not ſubdu'd or aſſimilated by the vital Force of a Human Body ſo intirely, as to be diveſted of their original Qualities; but while they repair the Fluids and Solids, act variouſly upon them, according to their different Natures. Therefore,

1. The proper Way of treating the Subject of Aliment, is to conſider the Actions of the ſeveral ſorts of it upon the Fluids and Solids of Human Bodies, and to ſeparate, at leaſt in Idea, their Alimentary from their Medicinal Qualities.

PROP.

P R O P. II.

The Diſeaſes of Human Bodies often require Subſtances of more active Principles, than what are found in common Aliment, in order to produce ſudden Alterations: But where ſuch Alterations are not neceſſary, the ſame Effect may be obtained by the repeated Force of Diet, with more Safety to the Body, where the leſs ſudden Changes are leſs dangerous. The ſmaller Activity of Aliment is compenſated by its Quantity; for according to the Laws of Motion, if the Bulk and Activity of Aliment and Medicines are in reciprocal Proportion, the Effect will be the ſame.

1. All Bodies which by the animal Faculties can be changed into the Fluids and Solids of our Bodies, are call'd Aliment. But to take it in the largeſt Senſe, by Aliment I underſtand

derſtand every thing which a Human Creature takes in common Diet, as Meat, Drink; and Seaſoning, as Salt, Spice, Vinegar, *&c.*

2. It has been explain'd (*Prop.* VII. *Chap.* II.) how the Aliment, in moving through the capillary Tubes at laſt, as it were ſtagnates and unites itſelf to the Veſſel or Tube through which it flows: But in this Motion it will act differently, both upon the Fluid and Solid, according to its different Nature. Every thing that acts upon the Fluids, muſt at the ſame time act upon the Solids, and contrariwiſe; yet one may ſeparate theſe two Actions in Idea.

PROP. III.

To enumerate the different Actions upon the Fluids and Solids of a Human Body.

There is a multitude of Words to expreſs the various Alterations which are produc'd in a Human Body by Diet and Medicines, but as far as relates to our preſent Subject, they may be reduc'd to the following general Heads.

1. The Actions upon the Solids are, *Firſt*, Stimulating or increaſing their Vibrations or oſcillatory Motions. *Secondly*, Contracting, that is, diminiſhing their Length, and increaſing their Thickneſs. *Thirdly*, Relaxing, or making them more flexible in their leſs coherent Parts. And *Laſtly*, Conſtipating, or contracting, or narrowing the Cavity of the capillary Tubes.

2. The Actions upon the Fluids are either changing their Qualities or their Quantity.

3. Their Qualities are chang'd by, *Firſt*, Attenuating and condenſing, that is, diminiſhing or increaſing the Bulk of their Particles. *Secondly*, By rendering them acrimonious or mild. *Thirdly*, By coagulating and diluting, that is, making their Parts more or

leſs coherent. *Fourthly*, By increaſing or diminiſhing their Motion through the Veſſels.

4. The Quantity of the Fluids is increas'd or diminiſh'd by the Increaſe or Diminution of the Quantity of Aliment; or by the ſuppreſſing or promoting animal Secretions.

5. That all theſe Actions can be perform'd by Aliment as well as Medicines, is plain from Reaſon, Experience, and in ſome Caſes by ocular Demonſtration, by obſerving the Effects of different Subſtances upon the Fluids and Solids of a Human Body, when the Veſſels are open and gape by a Wound or Sore. The Effects of tepid Water and farinaceous Subſtances in relaxing; of Spirits, in ſtopping Hæmorrhages, and conſolidating the Fibres; the Power of alkaline Abſorbents in ſubduing Acrimony, and of Oil in ſtopping Perſpiration, is well known to Chirurgeons, who are likewiſe well ac-

quainted with the Influence of Diet upon the Wounds and Sores of their Patients, and from the Condition of the one, can gueſs at the Errors or Regularity of the other. Acrid Subſtances will break the Veſſels, and produce an Ichor inſtead of laudable Pus. The chief Intention of Chirurgery, as well as Medicine, is keeping a juſt *Æquilibrium* between the influent Fluids and vaſcular Solids; when the Veſſels are too lax, and don't ſufficiently reſiſt the Influx of the Liquid, it begets a *Fungus* or proud Fleſh; when the Balance is on the other ſide, it produceth a Cicatrice. Were it not criminal to try Experiments upon Patients, which they too often try upon themſelves, I could anſwer that the Doctrine of this Chapter would be verify'd by Experience in Wounds and Sores, as it is often perceptible even in an Iſſue.

PROP. IV.

To explain the Effects of different alimentary Subſtances upon the Fluids and Solids of a Human Body.

1. The firſt ſort of Alimentary Subſtances are ſuch as are of ſo mild a Nature, that they act with ſmall Force upon the Solids, and as the Action and Re-action are equal, the ſmalleſt degree of Force in the Solids digeſts and aſſimilates them; of ſuch ſort is Milk, and Broths made of the muſcular Parts of Animals, which are as it were already prepar'd, and eaſily converted into animal Subſtances; theſe are proper Nouriſhment for weak Bodies, and agree perfectly well with them, unleſs there be ſome particular Acrimony in the Stomach, which ſometimes makes them offenſive, and which Cuſtom at laſt will overcome.

2. Thoſe things which ſtimulate the Solids, produce the greateſt Alterations in an animal Body. This is ſeen in many Inſtances. Violent Sneezing produceth Convulſions in all the Muſcles of Reſpiration, and an univerſal Secretion of all the Humours, Tears, Spittle, Sweat, Urine, *&c.* So great an Alteration can be produc'd only by the Tickling of a Feather, and if the Action of Sneezing ſhould be continu'd by ſome very acrid Subſtance, it will at laſt produce Head-ach, Vomiting, univerſal Convulſions, Fever and Death. Therefore ſuch active Subſtances as taken inwardly in ſmall Quantities make great Alterations in the Fluids, muſt produce this Effect by their ſtimulating Quality.

3. Acrid Subſtances, which are ſmall enough to paſs into the capillary Tubes, muſt ſtimulate the ſmall Fibres, and irritate them into greater Contraction, and ſtronger Vibrations.

4. Many things which we take as Aliment, or with our Aliment, have this Quality in ſome degree: As the Juices of acid Vegetables, fermented Liquors eſpecially ſharp Wines, fermented Spirits; aromatical Vegetables, as Fennel, Savory, Thyme, Garlick, Onions, Leeks, Muſtard, which abound with a volatile pungent Salt; all Spices in general, all Vegetables, which being corrupted, eaſily reſolve themſelves into a fœtid oily alkaline Subſtance. Onions, Garlick, Pepper, Salt, and Vinegar taken in great Quantities by their *Stimulus*, excite a momentary Heat and Fever, and therefore in ſome Caſes to be mention'd afterwards are very proper.

5. The ſolid Parts may be contracted various ways. *Firſt*, By diſſolving their Continuity, for when a Fibre is cut through, it contracts itſelf at both ends; therefore all things which are ſo ſharp as to deſtroy the ſmall Fibres, muſt contract

them. *Secondly*, Whatever empties the Veſſels, gives room to the Fibres to contract; therefore Abſtinence produceth this Effect in the beſt manner. Whatever ſhortens the Fibres, by inſinuating itſelf into their Parts, as Water in a Rope, contracts; fermented Spirits poſſeſs this Quality in a great degree.

6. The more oily any Spirit is, the more pernicious, becauſe it is harder to be * eluted by the Blood. Brandy is more eaſy to be ſo, than Spirit of Juniper; and that, than Spirit of Annis-ſeed. Compound aromatical Spirits deſtroy, *Firſt*, By their fermentative Heat. *Secondly*, By their oily Tenacity. *Thirdly*, By a cauſtick Quality reſiding in Spices apt to deſtroy the ſolid Parts; but theſe Qualities render them proper in ſome Caſes, taken in ſmall Quantities.

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* *Waſhed away.*

7. Fermented Spirits contract, harden and conſolidate many Fibres together, aboliſhing many Canals, eſpecially where the Fibres are the tendereſt, as in the Brain, by which Quality they deſtroy the Memory and intellectual Faculties.

8. Acid auſtere Vegetables have this Faculty of contracting and ſtrengthning the Fibres, without ſome of the bad Effects of fermented Spirits, as all kinds of Sorrel (the Virtues of which lie in an acid aſtringent Salt, a ſovereign Antidote againſt the putreſcent bilious Alkali) ſeveral kinds of Fruits, as Quinces, ſome ſorts of Pears with the Marmalades made of them, Medlars, Capers, Barberries, Pomegranates, Purſlain; ſuch are eaſily diſtinguiſh'd by a rough ſtyptick Taſte. Amongſt Drinks, auſtere Wines; unripe Fruits likewiſe have the ſame Quality, but are apt to occaſion foul Eruptions on the Skin, to obſtruct the Nerves, and occaſion Palſies.

9. Relaxing the Fibres is making them flexible, or eaſy to be lengthen'd without Rupture, which is done only in the capillary vaſcular Solids. Amongſt Liquids endued with this Quality of relaxing, warm Water ſtands firſt; next watery Decoctions of * farinaceous Vegetables, or Grains, as Oats, Barley, *&c.* All ſweet and mild Garden-fruits, almoſt all Pot-Herbs, Spinage, Beets, Cabbage, Coleworts, and all that Tribe. Red Cabbage, beſides, is reckon'd a good Pectoral; ſome of the Plants which yield a milky Juice, as Lettuce, Cichory, whoſe Milk is anodyne and reſolvent, therefore good in Diſeaſes of the Liver; but all ſuch Vegetables muſt be unfermented, for Fermentation changes their Nature. Oils expreſs'd from mild Plants, Animal Oils, Cream, Butter, Marrow, which laſt is of all oily Subſtances the moſt penetrating.

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* *Mealy.*

10. It is not probable that any thing which Human Creatures take as Aliment, ſhould have the Quality of entirely conſtipating or ſhutting up the capillary Veſſels, becauſe ſuch Subſtances could hardly enter the Lacteals, and if they did, would ſtop the Circulation in the Lungs; but all viſcid Aliment, ſuch as is made of farinaceous Subſtances unfermented, neither paſs the Lacteals, nor circulate ſo eaſily as the ſame Subſtances fermented. Some of the *Fungus* kind gather'd by miſtake for edible Muſhrooms, have produced a Difficulty of Breathing: But the capillary Tubes are moſt commonly totally obſtructed, either by outward Compreſſion, or Congelation of the Fluid.

11. The Qualities of the Fluids can be likewiſe chang'd by Diet; as *Firſt*, By * attenuating or diminiſhing the Coheſion of the Parts of the Fluid. The Coheſion of the Parts

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* *Making thin.*

depends upon the Weight and Quantity, therefore Abſtinence and a ſlender Diet attenuates, becauſe * Depletion of the Veſſels gives room to the Fluid to expand itſelf.

12. Whatever penetrates and dilutes at the ſame time; therefore Water impregnated with ſome penetrating Salt, attenuates moſt ſtrongly; Water with *Sal Ammoniac* will paſs through a Human Skin. To this Quality may be juſtly aſcrib'd the great Effects of medicated Waters; all ſtimulating Subſtances, by increaſing the Motion of the Blood, attenuate, unleſs they increaſe the Motion ſo much, as at laſt to produce Coagulation.

13. Thickening the Blood is moſt eaſily brought about by exhaling the moſt liquid Parts by ſudorifick or watery Evaporations; but this brings it into a morbid State. Acid auſtere Vegetables before-mention'd, have

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* *Emptying.*

this Quality of condenſing the Fluids, as well as ſtrengthening the Solids.

14. The Blood of labouring People is more denſe and heavy than of thoſe who live a ſedentary Life, and the Diſeaſes which People imagine proceed from the Thickneſs of Blood, come often from the contrary Cauſe; too thin Blood ſtrays into the immediately ſubordinate Veſſels, which are deſtin'd to carry Humours ſecreted from the Blood, according to what was ſaid, *Prop.* V. *Chap.* II. This cauſes an Obſtruction falſly aſcrib'd to the Thickneſs of the Blood.

The Qualities of Blood in a healthy State are to be florid when let out of the Veſſel, the red Part congealing ſtrongly and ſoon together in a Maſs moderately tough, ſwimming in the Serum, which ought to be without any very yellow or greeniſh Caſt. The Gravity of Blood to Sea-Water is as 26 is to 25, that of the

Serum to the ſame Water, as 300 to 353; it's an eaſy Matter to examine extravaſated Blood by theſe Marks.

15. Acrimony * is not natural, but induc'd into the Fluids of an animal Body. Acrimony may be introduc'd by Diet that is either Muriatick, (Briny) or Acid, which likewiſe is of two ſorts, of things naturally acid, or (made ſo by Fermentation) Subſtances aromatick, conſiſting of Salts, and highly exalted Oils, intimately united. Or *Secondly*, by increaſing the Velocity of the Blood, and conſequently the Attrition of the Parts.

16. Acrimony in the Blood itſelf is commonly of three ſorts according to the Nature of the Salts in which it reſides; † Acid, Alkaline, or Muriatick, as in the Sea-Scurvy, but the laſt approaches more towards the Alkaline, and admits of the ſame

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* *Sharpneſs.*

† *See* Explanation of the Chymical Terms.

Cure: Acid Acrimony reſides chiefly in the firſt Paſſages, proceeding often from the Weakneſs of Digeſtion, and the too long Duration of Vegetables, and Milk in the Stomach. Animal Subſtances are all alkaleſcent, of vegetable Subſtances ſome are acid, others alkaleſcent; and each ſort is to be uſed according to the two different Intentions.

17. Antiacid Vegetables are, *Firſt*, All kinds of Garlick, Onions, Leeks, and Celery; the Antiſcorbutick Plants, Carrots, Turnips, Eringo Roots, Aſparagus, Horſe-radiſh, Muſtard, Cabbage. *Secondly*, All animal Subſtances, eſpecially of ſuch as live on other Animals, the Juices of which are more alkaleſcent than of the Animals which live upon Vegetables; ſuch are moſt Fiſhes, eſpecially ſome of the Teſtaceous kind. *Thirdly*, Water, as it dilutes and ſubdues Acidity. *Fourthly*, Oils are Antiacids ſo far as they blunt Acrimony; but as

ſometimes they are hard of Digeſtion they produce Acrimony of another ſort.

18. On the other hand, when the Acrimony is alkaline, which is more frequently the Caſe in the circulating Juices, the proper Diet is Decoctions of farinaceous Vegetables, which ſeem appointed by Nature for the vegetable Diet of Human Creatures. This alkaline Acrimony indicates the copious uſe of Vinegar, and acid Fruits, as Oranges, which contain a Juice moſt effectual in the Cure of the Muriatick Scurvy of Mariners; the Juice of Lemons is likewiſe proper and more cooling and aſtringent than that of Oranges. In this Caſe all the mild Antiſcorbuticks are indicated, as Sorrel, Cichory, Lettuce, Apples; and of Liquids, Whey: On the contrary, all the acrid Antiſcorbuticks, as Scurvygraſs, Horſe-radiſhes, Muſtard, *&c.* are hurtful in this hot Scurvy.

19. There is a third ſort of Antiſcorbuticks proper in this alkaleſcent State of the Fluids, which are call'd Aſtringent, ſuch as Pomegranates, Capers, and moſt of the common Pickles prepar'd with Vinegar. The Extremity of Alkali is Putrefaction. All acid Subſtances, and Sea-Salt reſiſt Putrefaction; but as it is a ſharp ſolid Body unalterable in an animal Body, when it is taken in too great Quantities in a conſtant Diet of Salt Meat, it breaks the Veſſels, produceth Eroſions of the ſolid Parts, and all the Symptoms of the Sea-Scurvy, which is to be cured by acid Vegetables, and not by hot Antiſcorbuticks; all Spices likewiſe induce this Acrimony, as was hinted before.

20. There are other Subſtances which are oppoſite to both ſorts of Acrimony, which are call'd demulcent or mild, becauſe they blunt or ſheath theſe ſharp Salts, as farinaceous

Legumes, ſuch as Peaſe, Beans, Lentils. Native Oils of Animals, as Cream, Butter, Marrow, which laſt is a Specifick in that Scurvy which occaſions a crackling of the Bones, in which Caſe Marrow performs its natural Function of moiſtening them. All Plants which are without Smell or pungent Taſte, are demulcent; as likewiſe all the Alimentary Parts of ſound Animals, for none of their Juices will hurt the Eye, or a freſh Wound. Acrimony which is not * viſcid, may be cur'd by Diet; but Viſcidity requires more active Subſtances to diſſolve it.

21. Whatever renders the Motion of the Blood more languid than natural, diſpoſeth to an acid Acrimony: What accelerates the Motion of the Blood beyond what is natural diſpoſeth to an alkaline Acrimony.

22. The next Alteration which is made in the Fluids, is rendering them

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* *Tough, Gluey.*

more thin, which is perform'd by Diluting; there is no real Diluent but Water, every Fluid is diluent as it contains Water in it. Water dilutes, but at the ſame time relaxeth, this laſt Quality is taken off by mixing ſome acid Juice with it: Water mix'd with Acids reſiſts the Heat and alkaleſcent State of the Fluids; as long as there is Thirſt, a quick Pulſe, Drineſs, with a free Paſſage by Urine, and Stricture of the Veſſels, ſo long is Water ſafely taken.

23. Oppoſite to Dilution is Coagulation or Thickening, which is perform'd by diſſipating the moſt liquid Parts by Heat, or by inſinuating ſome Subſtances which make the Parts of the Fluid cohere more ſtrongly. All Vegetables, which make a black Tincture with the Vitriol of Steel, have this Quality; they have commonly a rough ſtyptick Taſte: Vinegar, as was ſaid before, is an Acid very particular, for it doth not

coagulate: Inflammable Spirits coagulate the Fluids, and harden the Solids in a ſtrong Degree.

24. Reſolving what is congeal'd, is turning it into a Fluid again; this can be perform'd by watery Liquors, impregnated with ſome penetrating Salt, but more effectually by ſaponaceous Subſtances compos'd of Oil and Salt, ſuch are Honey, and the Robs and Gellies of moſt Fruits. Vinegar and Honey mix'd is a ſtrong Reſolvent. Spiſſitude is ſubdu'd by acrid things, and Acrimony by inſpiſſitating.

25. The ſecond Manner of Operating upon the Fluids is by increaſing or diminiſhing their Quantity: the firſt is perform'd by a plentiful Diet, and the Suppreſſion of Evacuations; the Second, either by a ſpare Diet, or promoting the animal Secretions, that is, expelling the Fluids out of the Body. Tho' Secretions of the lauda-

ble Juices are beſt accompliſh'd by increaſing the Fluids.

26. Whatever generates a Quantity of good Chyle, muſt likewiſe generate Milk, ſuch is new Milk ſeaſon'd with Sugar or Salt. This will increaſe the Milk when it is diminiſh'd by the too great uſe of Fleſh-Meat: Gruels made of Grains, Broths, Malt-Drink not much hopp'd, Poſſet-Drinks, and in general whatever relaxeth, have the ſame Effect.

27. There are as many good Pectorals of the Alimentary, as of the Medicinal Kind, as all Preparations of Barley, Oats, Honey; all ſaponaceous Subſtances before-mention'd, which attenuate Phlegm.

28. There is Aliment lenitive, expelling the Fæces without ſtimulating the Bowels; ſuch are animal Oils quite freſh (for by ſtanding they grow acrid) as Cream, Butter, Marrow,

Broths made of the Parts of Animals about the Meſentery, Oils expreſs'd from ripe Fruits (from unripe they are auſtere and aſtringent) the Juices of mild and ripe Fruits, Decoctions of farinaceous Vegetables, natural Sopes, as Honey, Sugar, ſuch Diet is proper for the hot Conſtitutions of warm Countries, where ſtrong Perſpiration exhales the Moiſture, Water, Milk, Whey, taken in the open Air without much Exerciſe, ſo as to make them perſpire, relax the Belly.

29. There are Aliments which beſides this lubricating Quality, ſtimulate in a ſmall degree. Gellies made of the ſolid Parts of Animals, as of their Horns, ſtimulate by the Salts that are in them. Salted Fleſh, which often throws Ships-Crews into Fluxes; Shell-Fiſhes, which have a ſaline Taſte; Garden Fruits which have any Acrimony; moſt ſorts of Berries, ſome of which will produce

Diarrhœas; warm Water mix'd with Honey, and Honey mix'd with Acids diſſolve Phlegm in the Bowels. There are others which promote the Secretion of Bile, ſuch as all natural Sopes, the Juices of Fruits ſharp and ſweet, eſpecially Grapes; the immoderate uſe of which will produce a Cholera Morbus.

30. Diureticks are Decoctions, Emulſions, and Oils of emollient Vegetables, in ſo far as they relax the Urinary Paſſages: Such as relax ought to be try'd before ſuch as force and ſtimulate. Thoſe Emollients ought to be taken in open Air to hinder them from perſpiring, and on empty Stomachs. Vegetables which abound with eſſential Salts, are Diuretick by ſtimulating, as Sorrel, Chervil, Parſly, Eringo, *&c.* and likewiſe all ſuch as contain an aromatical Balſam, as Aſparagus, Fennel, *&c.*

31. As to Sudorificks, it ought to be conſider'd that the Liquid which goes off by Sweat, is often the moſt ſubtile part of the Blood, and ought not to be forc'd away without manifeſt Neceſſity. The Matter of inſenſible Perſpiration is mild; that of Sweat reſembles Urine, and yields a volatile Salt, oily and fœtid. When Sweat is vehement it will grow bloody. The Matter of Sweat is the watery part of our Drink impregnated with this Salt, ſometimes in weak and conſumptive People, Crude Chyle; and ſometimes (as was ſaid before) the moſt elaborate ſubtile part of our Blood, as in fat People, who have a ſmall inſenſible Perſpiration.

32. Sweat is produc'd by changing the Balance between the Fluids and Solids (in which it muſt be confeſt that true Health conſiſts) ſo as the projectile Motion of the Fluids overcome the Reſiſtance of the Solids; therefore it is produc'd by relaxing

the Paſſages of the Skin. *Secondly*, By diluting. *Thirdly*, By diſſolving the Blood. *Fourthly*, By accelerating its Motion. Water dilutes and relaxes at the ſame time, therefore is the beſt and ſafeſt Sudorifick; watery and acid things mix'd prove ſtrong Sudorificks; Spices by heating and diſſolving the Blood are not ſo proper and ſafe Sudorificks.

33. Inſenſible Perſpiration is the laſt and moſt perfect Action of animal Digeſtion; the keeping it up in due meaſure, is the Cauſe as well as Sign of Health, and the leaſt Deviation from that due Quantity, the certain Forerunner of a Diſeaſe; therefore the beſt Indications for Diet are taken from the Meaſure of Perſpiration.

The Food, which is moſt vapouriſh and perſpirable, is certainly the moſt eaſily digeſted, but ſuch may be proper or improper for the Animal, according to its Circumſtances, eſpecially the Quantity of its Muſcular Motion. By *Prop.* IV. *Chap.* II. The Strength of the Aliment muſt be proportion'd to the Action of the Solids upon it, which, in an Animal under a courſe of Exerciſe or hard Labour is much ſtronger; therefore Aliment too vapourous or perſpirable, will ſubject it to the Inconveniencies of too ſtrong a Perſpiration, which are Debility, Faintings, and ſometimes ſudden Death. What diminiſheth Sweating, or the ſenſible Perſpiration, increaſeth the inſenſible, for that Reaſon a ſtrengthening and aſtringent Diet often conduceth to this Purpoſe. According to the Experiments of *Sanctorius*, the moſt nouriſhing Aliment is the leaſt perſpirable, except Mutton, which of all others is moſt ſo, and Hogs-Fleſh the leaſt; and for the ſame Reaſon Eels, and all very fat and oily Subſtances: Copious Food of ſmall Nouriſhment perſpires much.

A Stomach too void or too full, ſtops Perſpiration. The Fruits of the low pomiferous Plants, as Cucumbers, Melons, *&c.* ſtop Perſpiration, therefore they are wiſely provided by Nature in a Seaſon when the Perſpiration is too great. Variety of Meats diminiſh Perſpiration, Honey in cold Conſtitutions increaſeth Perſpiration, except when it promotes too great a Secretion of the Bile, and then it diminiſheth it: Drinking exceſſively during the time of Chylification, ſtops Perſpiration. Let thoſe who ſit long at their Bottle after Meals, conſider this.

The moſt ſure Sign of a deficient Perſpiration is Flatulency, or Wind.

34. The Menſes are promoted. *Firſt*, By every thing which occaſions a Plethora, ſuch are all Aliments of eaſy Digeſtion, taken in ſufficient Quantity. *Secondly*, By all ſaponaceous Subſtances, which * incide the

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* *Cut, Diſſolve.*

Mucus in the firſt Paſſages. *Thirdly*, By Spices and warm Vegetables, which abound with a volatile oily Salt. Of theſe we have ſpoken before.

35. Heat in animal Bodies is produc'd by the Attrition of the Fluids and Solids, for when that ceaſeth, as in Death, there is Extremity of Cold. The ſolid Parts of Animals rubbing againſt one another, would in time produce a Heat capable to deſtroy the Parts, had not Nature provided an oily Subſtance to lubricate and moiſten them; when that fails, as happens ſometimes in the Scurvy, Gout, and Rheumatiſm, an Inflammatory Heat is often produc'd.

36. Stimulating Subſtances taken in Diet, increaſe Heat, becauſe they increaſe the oſcillatory Motion of the Solids, but moſt of all inflammatory Spirits. Whatever increaſeth the Denſity of the Blood, even without increaſing its Celerity, heats, becauſe

a denſer Body is hotter than a rarer. Extreme Cold at laſt heats. Cold in animal Bodies is produc'd by Cauſes contrary to thoſe productive of Heat; as *Firſt*, by diminiſhing the Force of any Stimulus, as by Whey, Milk, Water, *&c.* *Secondly*, By all things which relax. *Thirdly*, Alkaline Subſtances in reſpect of Acid, and Acid in reſpect of Alkaline are cooling.

37. Cephalick are all ſuch things as attenuate the Blood ſo as to make it circulate eaſily through the capillary Veſſels of the Brain. A Cordial, properly ſpeaking, is not always what increaſeth the Force of the Heart; for by increaſing that, the Animal may be weaken'd, as in inflammatory Diſeaſes. Whatever increaſeth the Natural or Animal Strength, the Force of moving the Fluids and the Muſcles, is a Cordial; theſe are ſuch Subſtances as bring the Serum of the Blood into the

propereſt Condition for Circulation and Nutrition, as Broths made of animal Subſtances, Milk, ripe Fruits, and whatever is endued with a wholeſome, but not pungent Taſte. Whatever relaxes the too ſtrict, or ſtrengthens the too lax Fibres; what in ſome Caſes diſpels Wind; what excites and takes off the ſluggiſh Motion of the animal Spirits, as Spices, Wine, and ſpirituous Liquors.

38. Carminative are ſuch things as dilute and relax at the ſame time, becauſe Wind occaſions a Spaſm or Convulſion in ſome Part; whatever promotes inſenſible Perſpiration is carminative, for Wind is perſpirable Matter retain'd in the Body.

39. All emollient relaxing Diet, and all things which deſtroy Acrimony, abate Pain.

40. There are ſeveral things taken in Diet which kill Worms, as Oil, and Honey.

Whoever attends to the Particulars barely hinted at in this Chapter, will eaſily perceive that all the Intentions purſued by Medicines, may be obtain'd and inforc'd by Diet.

It may be expected that I ſhould ſay ſomething in this Chapter of the Qualities of three exotick Plants, whoſe Infuſions and Decoctions are now much us'd in common Aliment, Tea, Coffee, and Chocolate: There are many Treatiſes wrote about them, which aſcribe to them both good and bad Qualities, which they have not. There is lately publiſhed a very learned and elaborate Diſſertation upon Tea, by Dr. *Thomas Short*, in which the Author with great Knowledge, Induſtry, and Skill, has not only given us the natural Hiſtory of the Plant, but likewiſe its Analyſis.

But as the Infuſions and Decoctions of the foremention'd Vegetables in common Water, are the only Preparations of them in Uſe, there is no Neceſſity in this Place of conſidering any of their Contents, but ſuch as are extracted by thoſe ſimple Operations of Cookery.

The green Leaves of Tea contain a narcotick Juice, which exudes by Roaſting. This is perform'd with great Care before it is expos'd to ſale. The ſeveral Methods of diſcovering the Adulterations of Tea by Copperas, Galls, Spirit of Hartſhorn, one may ſee in the foremention'd Treatiſe. Tea, by its manner of affecting the Organs of Taſte and Smell, contains very little of a volatile Spirit; its Roſin or fix'd Oil, which is bitter and aſtringent, cannot be extracted by Water, but demands rectify'd Spirit. The active Principles of it extracted by Infuſion, are the moſt ſeparable Parts of its Oil or Gum, and its Salt.

Its Salt and Gum are aſtringent; chalybeat Water draws from it a

Tincture of the ſame Colour as that from Oak-leaves. It is aceſcent, as appears by its Effects upon Stomachs troubled with Acidity: So that Tea is an Infuſion of a Plant aceſcent, and moderately aſtringent in warm Water.

As a watery Liquor, it is diluting; and ſtimulating by its Salt: By its aſtringent Quality it moderates the relaxing Quality of warm Water. By what has been ſaid before in this Chapter, Water endu'd with any ſaline ſtimulating Subſtance is very penetrating, and goes into the moſt inward Receſſes of the circulating Juices by its Quality, and refreſheth the Brain and animal Spirits; but by its ſtyptick and ſtimulating Quality it affects the Nerves, very often occaſioning Tremors; by its Heat it promotes Perſpiration; by its watery Quality it diſſolves what is viſcid in the Stomach, and ſo may help Digeſtion; but a ſtrong De-

Decoction of it is emetick, and drinking too great Quantities may relax and weaken the Tone of the Stomach.

As ſtimulating and diluting, it is diuretick; but as it is aſtringent, it is not quite ſo proper where relaxing the Urinary Paſſages is neceſſary.

Milk abates ſome of the forementioned Qualities, making it more ſoft and nutritious, and Sugar, as a Salt, increaſeth its *Stimulus*. From thoſe Hints it follows, *Firſt*, That Tea is proper only for ſuch whoſe Bodies are in ſuch a State as demands ſome of the forementioned Alterations. Who theſe are, will be ſhewn more plainly in the following Chapter. *Secondly*, That the immoderate Strength and Quantity of this Liquor may be hurtful in many Caſes, and to moſt People.

Coffee has in common with all Nuts an Oil ſtrongly combin'd and entangled with earthy Particles.

The moſt noxious Part of its Oil exhales in roaſting to the Abatement of near $\frac{1}{4}$ of its Weight.

* One Pound of Coffee, by Diſtillations, afforded of volatile Spirit, ſix Ounces, ſix Drachms; of Oil, two Ounces, two Drachms, two Scruples; of *Caput mortuum*, five Ounces, three Drachms. Tho' the Chymiſt did not, or could not calcine the *Caput mortuum*, ſo as to obtain its fix'd Salt, to be ſure it muſt have ſome.

What is extracted by Water from Coffee, is the moſt ſeparable Parts of Oil, which often ſwims a-top of the Decoction. This Oil is volatile, and conſequently very little nutritious.

Volatile Oils refreſh the animal Spirits, but likewiſe are endued with all the bad Qualities of ſuch Subſtances, producing all the Effects of an oily and aromatical Acrimony mention'd in the following Chapter, as Drineſs, Heat, Stimulation, Tremors of the Nerves; from whence it has been accus'd of cauſing Palſies, Leanneſs, Watchfulneſs, and deſtroying maſculine Vigour.

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* *Vide* Philoſophical Tranſactions.

From theſe Qualities it is eaſy to imagine, that it muſt be hurtful to hot, dry, bilious Conſtitutions, and perhaps beneficial to Phlegmatick; and when drank in too great a Degree of Strength or Quantity, hurtful to every body.

Chocolate is certainly much the beſt of thoſe three exotick Liquors; its Oil ſeems to be both rich, alimentary, and anodyne; for an Oil as ſoft as that of Sweet Almonds can be extracted from the Nut, and the *Indians* make Bread of it. This Oil, combin'd with its own Salt and Sugar, makes it ſaponaceous and cleanſing, by which Quality it often helps Digeſtion and excites Appetite; when it is mix'd with Vanillios, or Spices, it acquires likewiſe the good and bad Qualities of aromatick Oils, which are proper in ſome Caſes and Conſtitutions, and very improper in others.

CHAP. VI.

Of the different Intentions to be purſued in the Choice of Aliment in different Conſtitutions.

WHoleſome and unwholeſome are relative, not real Qualities; therefore to affirm that ſuch a Thing is wholeſome or unwholeſome, without deſcribing the Subject in all its Circumſtances to which it bears theſe Relations, is, with Submiſſion, talking Nonſenſe.

To make theſe Terms of wholeſome and unwholeſome Aliment intelligible, there are two things neceſſary,

ceſſary, *Firſt*, To ſhew what Aliment is proper for what Intention. *Secondly*, What Intention is proper to be purſued in ſuch a Conſtitution of a Human Body. The *Firſt* is the Subject of the foregoing Chapter, and the *Second* of this.

PROP. I.

To enumerate the moſt common Diverſities of the Conſtitutions of Human Bodies.

The moſt common Diverſities of Human Conſtitutions ariſe either from the ſolid Parts as to their different Degrees of Strength and Tenſion; in ſome being too * lax and weak, in others too † elaſtick and ſtrong; or from the different State of the Fluids, which, as they conſiſt of Spirit, Water, Salts, Oil, and terreſtrial Parts, differ according to the Redundance of the whole, or of any of theſe Ingredients, and therefore are plethorick, phlegmatick, oily or fat, ſaline, earthy, or dry, by the Diſſipation of the moſt fluid Parts, which laſt Conſtitution is call'd by the Ancients, Atrabilarian, or Melancholick. A plethorick Conſtitution in which true Blood abounds, is call'd Sanguineous. A ſaline Conſtitution is either acid, alkaline, or muriatick, according to the Difference of the Salts which occaſion it.

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* *Slack, of a looſe Texture.*
† *Springy.*

2. In ſome of theſe Senſes, tho' every Human Conſtitution is morbid, yet are their Diſeaſes conſiſtent with the common Functions of Life, and leave them under their own Conduct, as to their manner of living, and therefore are a proper Subject for this Diſcourſe, in which I am far from pretending to inſtruct the Brethren of the Profeſſion, or anticipating their Directions to ſuch as are under their Government.

3. I think it proper to advertiſe the Reader of two things. *Firſt*,

That I endeavour to give the moſt ſimple Idea of the Diſtemper, and the proper Diet, abſtracting from the Complications of the Firſt, or the Contra-Indications to the Second. *Secondly*, That in a Diſcourſe of this Nature, the Reaſonings muſt be preciſe, tho' the Practice may admit of great Latitude.

PROP. II.

To explain the Cauſes, Symptoms, and proper Diet of weak and lax Fibres.

1. In all the Fibres of an animal Body, and in the Sides of all the Canals, there is a contractile Power whereby the Fibres endeavour to ſhorten themſelves. This is evident; for if a Fibre be cut tranſverſly, both the Ends ſhrink, and make the Wound gape; the Force oppos'd to this contractile Power of the Fibres, is the influent Liquid. Health con-

ſiſts in the * *Æquilibrium* between thoſe two Powers, when the Fluids move ſo equally, that they don't preſs upon the Solids with a greater Force than they can bear, and no more in one Part than in another; and on the other hand, when the Solids reſiſt and act upon the Fluids ſo equally, that there is no uneaſy Senſation, the Animal is in Health; on the contrary, whenever this *Æquilibrium* between the influent Fluids and Solids is taken away, the Animal is in a morbid State; and whatever deſtroys it in any Point, deſtroys it in ſome meaſure through the whole Body.

2. The firſt and moſt ſimple Solids of our Body are perhaps merely terreſtrial, incapable of any Change or Diſeaſe; of theſe Elements are conſtituted the ſmalleſt Fibres, of thoſe Fibres the Veſſels, of thoſe Veſſels the *Viſcera* or Organs of the Body; therefore the Weakneſs and Laxity of

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* *Equal Balance.*

the Fibres, Veſſels, Viſcera, and all Parts of the Body, may be conſidered as one Diſeaſe; tho' it muſt be own'd that the Diſeaſe is not always univerſal, and there will be ſometimes a Weakneſs in ſome Organ with a great degree of Muſcular Strength.

3. A Fibre is ſaid to be weak when the Coheſion of its Parts is ſo ſmall that it may be broken, or reſolved by a Force not much greater than what happens commonly in the Body of a healthy Perſon: Debility of the Veſſels or Organs is ſo ſmall a Coheſion of the conſtituent Parts as makes them unable to diſcharge the common Functions of Life, conſider'd in a State of Health. Tho' there is a Debility of Fibres in Infants, abſolutely ſpeaking, yet it is no Diſeaſe, becauſe their Fibres being lax, lengthen by the Influx of the Liquids, which is the Cauſe of their Growth; but in adult Perſons, when the Fibres cannot any more

yield, they muſt either break or loſe their Spring.

4. Laxity of a Fibre is ſuch a ſmall Coheſion of its Parts, as ſuffers it to be lengthen'd by a ſmall Force: Laxity is a Species of Debility.

5. The moſt common Cauſes of Debility of Fibres are, *Firſt*, A Defect or great Loſs of the vital nutritious Juices: If there is not Blood enough, the Chyle cannot be eaſily aſſimilated. A Perſon who loſeth daily great Quantities of Blood, turns Dropſical and Leucophlegmatick. An elaſtick Fibre, like a Bow, the more extended, it reſtores itſelf with the greater Force; if the Spring be deſtroy'd, it is like a Bag only paſſive as to the Influx * of the Liquid. *Secondly*, Nouriſhment too viſcid and glutinous to be ſubdu'd by the vital Force; of this Sort *Hippocrates* reckoned unfermented Bread. *Thirdly*, A ſedentary Life, for Motion increaſeth the Circulation

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* *Flowing in.*

of the Juices, and conſequently the Application of the ſolid Parts to one another. *Fourthly*, Too great an Extenſion of the Fibres by Plenitude; a Lute-ſtring will bear a hundred Weight without Rupture, but at the ſame time cannot exert its Elaſticity; take away fifty, and immediately it raiſeth the Weight. *Fifthly*, A moiſt Atmoſphere. The Atmoſphere is what keeps the Fibres of an animal Body together, we feel our Fibres grow ſtrict or lax, according to the State of the Air; many who live healthy in a dry Air, fall into all the Diſeaſes that depend upon Relaxation in a moiſt one. *Laſtly*, A natural Weakneſs from the Frame and Conſtitution of the Body.

6. The common Signs and Effects of weak Fibres are Paleneſs, Smoothneſs, Coldneſs of the Skin, Colour of the Blood not Florid (for what maketh that is a ſtrong Action of the Solids) a weak Pulſe, Tumefactions in the whole Body or Parts,

Stagnation of Humours, and its Conſequence, Putrefactions; for when the Force of the Veſſels and Preſſure of the Air is taken off, all the Humours expand themſelves, and what ſtagnates muſt putrify; if a Perſon of a firm Conſtitution begins to bloat, and from being warm, grows cold, his Fibres grow weak. Anxiety and Palpitations of the Heart are a ſign of weak Fibres: Acid Eructations upon taking vegetable Food, or Nidoroſe upon taking Animal, is a Sign of Weak Organs of Digeſtion. Depravation of the Humours from a ſound State, to what the Phyſicians call by the general Name of a * Cacochymy, Spots and Diſcolourations of the Skin are Signs of weak Fibres; for the lateral Veſſels, which lie out of the Road of Circulation, let groſs Humours paſs, which could not if the Veſſels had their due degree of Stricture. † Atro-

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* *Redundance of ill Humours.*
† *Decay of the Fleſh.*

phy, as denoting a Deſtruction or Obſtruction of the Veſſels, which carry the Nouriſhment, and Dropſies, proceed from a Laxity of the Fibres, being too weak to return the Fluid. In a Word, the moſt part of chronical Diſtempers proceed from Laxity of the Fibres; in which Caſe the principal Intention is to reſtore the Tone of the ſolid Parts; all Attempts without this, will prove unſucceſsful; and if the Tone of the Solids is reſtor'd, the Diſeaſe will go off in time.

7. It is evident that the Aliment of Perſons with weak Fibres, ought to be ſuch as requires but a ſmall Force to convert it into animal Subſtances, ſuch is that mention'd *Chap.* V. *Prop.* IV, V. As Milk, which is the Chylous Part of an Animal already prepar'd, the Cheeſy Part is ſeparated and diſſolv'd by the Bile, and the more Serous and Spiritous Part enters into the Blood; meer Whey is

too relaxing: Eggs taken warm from the Hen; for the moſt elaborate and ſpiritous Part is loſt in the dreſſing: Broths made of Fleſh, which are the nutritious animal Juices ſeparated from the ſolid Parts; the alkaleſcent Quality of Broths may be corrected, if neceſſary, by mixing them with ſome Acid: Decoctions, and Creams, or Jellies of well fermented Bread (for Fermentation, as was hinted *Chap*. III. *Prop*. IV. deſtroys the glutinous oily Viſcidity with which mealy Subſtances abound) auſtere Wines diluted with Water, which cool more than Water alone, and at the ſame time do not relax; Vegetables with an acid auſtere Juice, mention'd *Chap*. V. *Prop*. IV. VIII. are all proper in this Caſe. Relaxation from Plenitude is cur'd by ſpare Diet, and from any Cauſe by that which is contrary to it. Care muſt be taken in contracting the Fibres, not to obſtruct the Veſſels.

PROP.

PROP. III.

To explain the Symptoms, Cauſes, and proper Diet of too ſtrong and too elaſtick Fibres.

1. A State oppoſite to the former is too great Rigidity and Elaſticity of the Fibres, which is ſuch a degree of Coheſion as makes them inflexible to the Cauſes to which they ought to yield, ſo as to preſerve the Animal in Health: Too great Elaſticity is that Quality by which they not only reſiſt againſt * Elongation, but reſtore themſelves with too great Preſſure and Force upon the moving Fluid.

† Rigidity of the Organs is ſuch a State as makes them reſiſt that Expanſion, which is neceſſary to carry on the Vital Functions. Rigidity of

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* *Lengthening.*
† *Hardneſs, Stiffneſs.*

the Veſſels and Organs muſt neceſſarily follow from Rigidity of the Fibres, both as the Fibres are their conſtituent Parts, and likewiſe becauſe by the ſtrong Force of the Heart, and Motion of the Fluids, many of the Solids are compacted into one, and the Canals, through which they flow'd, aboliſh'd, as by *Prop.* VII. *Chap.* II.

2. True Health conſiſts in ſuch a Flexibility of Fibres as yield to the Force of the Heart, ſo as to admit the influent Fluid, and then ſuch a due Spring to reſtore themſelves ſo as to drive it forward; for if the Canals were intirely rigid, or the Force of the Fibres in reſtoring themſelves were either in Æquilibrium with, or exceeding that of the Heart, there could be no Circulation, even if the Veſſels drive back the Blood with too great a Force upon the Heart, it will produce * Polypoſe Concre-

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* *Solid Subſtances.*

tions in the Ventricles of the Heart, eſpecially when the Valves of the Heart are apt themſelves to grow too rigid; if but one Drop of Blood remain in the Heart at every Pulſe, thoſe in many Pulſes will grow to a conſiderable Maſs.

3. It is eaſy, by the Laws of Hydraulicks, to determine the natural Effects of ſuch a Conſtitution, which is the Parent of acute Diſeaſes, as Laxity of Chronical.

4. The Cauſe of ſuch a Diſeaſe, beſides the natural Conſtitution and Frame of the Body, is too long a Continuance of ſuch Diet as ſtrengthens the Fibres; hard Exerciſe, or Labour, ſuch as uſe it, according to *Hippocrates*, are not eaſily cur'd of Pleuriſies; ſuch a Conſtitution is eaſily known by the outward Appearances of the Body being lean, warm, hairy, ſcraggy, dry, without a Diſeaſe, with hard and firm Muſcles; for the great Force by which the

ſmall Veſſels reſtore themſelves, makes them grow narrow, expelling the Liquor they contain, and ſcarce admitting what is influent, by which the Veſſels grow hard and contracted; laſtly, by the Strength of the Pulſe, and the Force of the vital Actions.

5. The Rules of Diet for ſuch a Conſtitution may be drawn from *Prop.* IV. of the foregoing Chapter. *Firſt*, Abſtinence from things us'd in the contrary State of too great Laxity. Milk is too nouriſhing, but Whey proper as an Emollient. Auſtere and ſtrong Wines are improper, but much more ſo are inflammable Spirits, which harden the Fibres; Water is the proper Drink, being ſtrongly relaxing; there is no better way of ſuppling a Carcaſs, than by drenching it in Water: All emollient Nouriſhment, ſuch as Fruits, which contain a Mucilage, and may be boil'd into Jellies: Pot-Herbs

of the emollient kind, ſuch things as reſolve and cleanſe, that is, take away any tenacious Solid which adheres to the Fibres, ſuch are vegetable Sopes, the chief of which is Honey. The animal Food ſhould be prepar'd in Broths rather than in any other Form. In this Caſe are proper all things which increaſe Fat, all oily Subſtances, the animal Oils, Cream, Butter, Marrow, farinaceous Subſtances unfermented, as little Salt in the Aliment as poſſible; for Salt hardens.

6. From thoſe two Cauſes of the Laxity and Rigidity of the Fibres, the Methodiſts, an ancient Set of Phyſicians, deriv'd all Diſeaſes of human Bodies with a great deal of Reaſon; for the Fluids derive their Qualities from the Solids. There ſeems hardly any other Account to be given of the different animal Secretions, than the different Configuration and Action of the ſolid

Parts, which from one homogeneous Liquor ſeparate ſo many various Fluids in an animal Body; and I am of opinion, that in moſt Caſes where the Juices are in a morbid State, if one could ſuppoſe all the unſound Juices taken away, and ſound Juices immediately transfus'd, the Quality of the ſolid Parts remaining the ſame, after many Circulations the ſound Juices would grow morbid. The Methodiſts err'd in ſo far as they conſider'd the Diſeaſe inhering only in the Vaſcular Solids, and applied their Remedies chiefly to them, not reflecting that the Solids themſelves can be changed by working upon the Fluids.

PROP. IV.

To explain the Cauſes and proper Diet of Plethorick Conſtitutions.

The Diſeaſes of the Fluids are, firſt a Plethora, or too great Abundance of laudable Juices; the Cauſes of which are ſtrong chylopoetick Organs, Plenty of wholeſome Diet, a middle Age, ſanguineous Temperament (of which afterwards) Lazineſs, or want of muſcular Motion, moiſt Air, Suppreſſion of uſual Evacuations. The Effects are Impatience of Heat, or Labour, Extenſion of the greater Veſſels, Compreſſion of the leſſer, * Lacerations upon ſmall Cauſes, a Stoppage of Circulation by too great a Weight upon the Heart, Suffocation, *&c.* The Remedies for this Conſtitution are oppoſite to the Cauſes of it; ſpare Diet, Exerciſe, and proper Evacuations; only it muſt be obſerv'd that Plethorick Bodies are not to be cur'd by long Abſtinence, becauſe in that Caſe the moſt liquid Parts fly off, and the groſſer remain: Blood-letting removes a Symptom, but often increaſes the Force of the chylopoetick

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* *Tearing, breaking.*

Organs, and conſequently the Diſeaſe.

PROP. V.

To explain the Symptoms and proper Diet of ſanguineous Conſtitutions.

1. A ſanguineous Conſtitution (in the common Acceptation of the Word) that is, of a Perſon who abounds with Blood, is different from a Plethorick; the common outward Sign of ſuch a Conſtitution is a florid Appearance in the Countenance, a Blueneſs and Fulneſs of the Veins, Softneſs of the Fleſh, a particular vivid, fair, but not pale Colour of the Skin; ſuch a Conſtitution with a great Appearance of Health is ſubject to many Diſeaſes.

2. The Blood, as was obſerved *Prop.* V. *Chap.* II. conſiſts of red Globules, ſwimming in a thin Liquor call'd Serum, the red Part is

ſmalleſt in Quantity. The red Globules are elaſtick, and will break, one red Globule into ſix ſmall, and then they will turn yellow, thoſe yellow Globules break into others ſtill ſmaller, and then they grow more white and tranſparent; the Veſſels which admit the ſmaller Globules, cannot admit the greater without a Diſeaſe. Therefore as the Blood paſſeth through narrower Channels, the Redneſs diſappears more and more. All the Chyle is white, and acquires this red Colour by Circulation. A free and ſtrong projectile Motion of the Blood muſt occaſion a florid Appearance upon the Skin in ſuch Conſtitutions, becauſe a ſtronger Motion forceth the red Part into more capillary Veſſels. To which likewiſe there is commonly another Cauſe that concurs, the greater Tranſparency of the Veſſels occaſioned by the Thinneſs and Delicacy of their Coats. That this is the Caſe of ſanguineous Perſons is plain from their great Veins appearing blue and tranſparent by the Colour of the Blood in them.

3. Therefore ſuch Perſons ſeem to be ſuſceptible of Diſeaſes, that depend upon a ſtrong projectile Motion of the Blood, and too great Thinneſs and Delicacy of the Veſſels; by the firſt they are ſubject to Inflammatory Diſtempers, for the greater Action or Reaction of the Fluids and Solids produceth a greater Attrition, to which Heat is proportional: This great Attrition muſt produce a great Propenſity to the putreſcent alkaline Condition of the Fluids, and conſequently to Suppurations: a ſtronger projectile Motion of the Blood, muſt likewiſe occaſion greater Secretions, and loſs of liquid Parts; and from thence perhaps Spiſſitude and * coriaceous Concretions, which are always

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* *Tough like Leather.*

found in Animals that die of too ſtrong a Circulation.

If the Veſſels are in a State of too great Rigidity, ſo as not to yield, a ſtrong projectile Motion occaſions their Rupture and Hæmorrhages; eſpecially in the Lungs, where the Blood is abundant; if the Veſſels, inſtead of breaking, yield, it ſubjects the Perſon to all the Inconveniences of an erroneous Circulation, (that is, when the Blood ſtrays into the Veſſels deſtin'd to carry Serum or Lymph, according to *Prop.* V. *Chap.* II.) From whence will follow Obſtructions and Inflammations, and as the Thinneſs, and Delicacy of the Veſſels probably reigns through the whole Syſtem, it muſt affect the Glands and Lymphatick, as well as the Blood-Veſſels, and ſuch Conſtitutions muſt be ſubject to glandulous Tumours, and Ruptures of the Lymphatick, and all the Diſeaſes thereon dependent.

4. The natural Helps from Diet are, firſt, Moderation in the Quantity, all things which relax the Veins; for what does ſo, prevents too vigorous a Motion through the Arteries: Therefore relaxing and cooling are proper Intentions in the Diet, only where there are Signs of too great a Thinneſs in the Fluids, ſubacid Subſtances are proper, tho' they are a little Aſtringent; for Perſons who take a great deal of Vinegar, abate their florid Colour, which is the Diſeaſe of ſuch a Conſtitution.

For ſuch a Diet the Reader is referr'd to the foregoing Chapter.

A ſaline Conſtitution of the Fluids is either acid, alkaline, or muriatick, as in the Sea-Scurvy: Of theſe in their Turns.

PROP. VI.

To explain the Symptoms, Cauſes, and proper Diet of acid Conſtitutions.

1. It has been demonſtrated before, that the Juices of a ſound Animal are neither acid nor alkaline, by the Experiments mention'd *Chap.* IV. All the Subſtances, fluid and ſolid, of an Animal fed even with aceſcent Subſtances, yield by Fire nothing but alkaline Salts. Thoſe Experiments which endeavour to ſhew the contrary, have been made upon Animals which had taken much Sea-Salt, which is never totally changed in an animal Body. The ingenious and learned *Boerhaave* fed a Sparrow with Bread four Days, in which time it eat more than its own Weight, and yet there was no Acid found in its Body or Excrements: The Reaſon of this is, that the vital Force of a ſound Animal is capable to tranſmute the acid Subſtances it takes in Aliment, into ſoft nutritious animal Liquids, by its vital Force: (By which is underſtood the Sum of all thoſe Powers in an animal Body which con-

verts its Aliment into Fluids of its own Nature.) A Cow fed with Trefoil, Daiſies, Sorrel, gives Milk in which there is not the leaſt Acidity; but if this vital Force is weak, it is inſufficient to ſubdue the Acidity of the Subſtances taken by the Mouth. The Liquors which are made of fermented Plants, as Wine, and Malt Liquors, ſtanding in a Heat not greater than that of a Human Body, turn ſour; and ſo they will in a Human Body that has not ſufficient vital Force to change them, which makes no more Alteration in ſuch Subſtances than a Veſſel with the ſame degree of Heat and Moiſture. Thus weak Stomachs vomit up the Wine that they drink in too great Quantities to be digeſted, in the Form of Vinegar. Put Bread into the Stomach of a dying Man, and it will follow its own Nature, and undergo the Alteration that is merely the Effect of Heat. A weak Stomach will turn Rye-Bread into Vinegar, and a Plough-man will digeſt it. Mealy Subſtances fermented, turn ſour; and unfermented, being mix'd with a ſmall Quantity of Water, they turn viſcid, and then hard like Stones: Accordingly, given to a weak Child, they ſtill retain their Nature, for Bread will give him the Cholick, and unfermented farinaceous Subſtances will fill his Belly with a viſcous Humour.

2. As no Acid is naturally in an animal Body, but muſt be taken in by the Mouth; ſo if it is not ſubdu'd in the Paſſages of the Chyle, it may get into the Blood; and if there is not a ſufficient Quantity of Blood, and Strength of Circulation to ſubdue it, it may infect the whole Maſs of the Fluids; but this is a morbid State. The Experiments made upon Chyle have never diſcover'd any Acidity in it; but the Subject of theſe Experiments has

been always the Chyle of healthy Animals.

3. The firſt and principal Seat of Acidity is the Stomach; this Quality of the Chyle is in ſome meaſure taken off in the *Duodenum*, and by the Mixture of Bile with it, grows leſs in the other Parts of the Alimentary Duct, and ſtill leſs in the Thoracick Duct, becauſe great Quantities of animal Liquors have been mix'd with it; but at laſt it may (as was ſaid before) infect the Blood: Thus it is found by Experience, that the Sweat is ſometimes acid, which is a Sign of Recovery after acute Diſtempers, where the Blood was in the contrary alkaleſcent Diſpoſition.

4. The antecedent Concomitants and Effects of ſuch a Conſtitution are Acids taken in too great Quantities: Sour Eructations, a craving Appetite, eſpecially of terreſtrial and * ab-

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* *That ſucks in a Liquid.*

ſorbent Subſtances, the Caſe of Girls in the Green-Sickneſs, Sourneſs in the Stomach, Pain in the Stomach, (which, tho' ſometimes occaſion'd by an acrid Bile, this Cauſe may be diſtinguiſh'd by the Abſence of other Symptoms) Colical Pains about the Navel; the *Weſt-India* dry Gripes are perhaps occaſion'd by the too great Quantities of Acids, as Lime-Juice in Punch. The Colicks of Infants proceed from Acidity, and the Air in the Aliment expanding itſelf while the Aliment ferments; for Oil of Vitriol will throw the Stomach into involuntary Contractions: Inactivity and Change of Colour in the Bile; for Acids change the Colour and Conſiſtence of it. Bile is the chief Inſtrument of Digeſtion, and, as was ſaid before, *Prop.* V. *Chap.* I. can attenuate the cheeſy Subſtance in the Stomach of a Calf, and render it fluid; hence bilious Conſtitutions eaſily digeſt Cheeſe: a ſour Smell of the Fæces (when the Bile is redundant, they ſmell cadaverous) acid Sweats, Paleneſs of the Skin; for, as was obſerv'd before, taking much Vinegar will make the Lips pale. It is poſſible that Tumors in the Breaſts may be the Effect of Acidity in the Milk, and Convulſions in Infants may be occaſion'd from Acidity paſſing into the Blood, and affecting the tender Fibres of the Brain. Some ſorts of cutaneous Eruptions are occaſion'd by feeding much on acid unripe Fruits, and farinaceous Subſtances.

5. Acidity, as it is not the natural State of the animal Fluids, but induc'd by Aliment, is to be cur'd by Aliment, with the contrary Qualities; for which the Reader is referr'd to the foregoing Chapter. Antiacid Medicines are ineffectual without a Diet of the ſame kind; all animal Diet is alkaleſcent, eſpecially of ſuch as feed upon other Animals,

mals, as Inſects, Fiſh, and eſpecially Shell-Fiſh. Acidity in the Infant may be cur'd by a Fleſh-Diet in the Nurſe. There are a great many anti-acid Vegetables which do not eaſily ferment, but putrify, as all the warm Anti-ſcorbuticks: Celery, Aſparagus, Cabbage, Turnips, Carrots, Onions, Leeks, Radiſhes, Muſtard, Eringo-Roots and Nettles, are Anti-acid. In Caſes of Acidity, Water is the proper Drink; its Quality of relaxing too much may be corrected by boiling it with ſome animal Subſtances, as Ivory, Hartſhorn: Abſtinence from fermented Liquors is neceſſary.

6. This Diſtemper is moſt incident to Children, becauſe of the Debility of their Fibres and Milk-Diet, to ſuch as lead a ſedentary Life, to thoſe who take much Bread and Wine, and vegetable Acids, to Girls diſpos'd to the Green-Sickneſs, and to Artificers who deal in the Pre-

parations of Acids, as Diſtillers, Dyers.

PROP. VII.

To explain the Symptoms, Cauſes, and proper Diet of Conſtitutions, which abound with a ſpontaneous Alkali.

1. A Conſtitution oppoſite to the former, is that which abounds with a ſpontaneous Alkali. No Animal unputrify'd, being burnt, yields any alkaline Salt, but putrify'd, yields a volatile Alkali, therefore in a healthy Animal no true Alkali is found; but as an Animal degenerates from this State, by ſuch Diſeaſes as increaſe the Attrition and Heat of the Fluids, the animal Salts formerly benign approach towards an alkaline Nature. Human Blood, when it is firſt let, is mild, and will not make the Eye or a freſh Wound ſmart. Let it ſtand in a degree of Heat equal to that of

a Human Body, it will grow in three Days fœtid, the Salt of it volatile and alkaline, fermenting with Acids, the Oil that remains volatile and rancid; the Blood in the Veſſels may at laſt arrive at the ſame State, but muſt paſs thro' infinite Degrees, and before it comes to the laſt the Animal will be deſtroyed. All animal Subſtances expos'd to the Air, turn alkaline of their own accord, and ſome Vegetables by Heat will not turn acid, but alkaline: Every Plant in that State of Putrefaction by *Prop.* III. *Chap.* I. is converted, as it were, into an animal Subſtance, by Chymical Trials, yielding the ſame Contents.

2. The Cauſes of ſuch a Diſtemper is a Diet of alkaleſcent Subſtances. If a Woman ſhould live upon Vegetables, Bread, and fermented Liquors, her Milk would be aceſcent, or ready to turn ſour; if only an animal Food, her Milk would

be apt to turn fœtid and putrid, but not ſour.

If it was poſſible to take Muſtard in great Quantities, it would quickly bring the Blood into this alkaline State, and deſtroy the Animal; the warm antiſcorbutical Plants taken in Quantities, will occaſion ſtinking Breath, and corrupt the Blood. All Animals that live upon other Animals have their Juices more alkaleſcent, than ſuch as live upon Vegetables, and for that Reaſon perhaps Fiſhes have this Quality more than terreſtrial Animals; for in the open Air they putrify ſooner, by what was ſaid *Prop.* I. *Chap.* IV. An Animal with a ſtrong vital Force of Digeſtion will turn Acids into animal Subſtances; but if its Food be intirely alkaleſcent, its Juices will be more ſo. No Perſon is able to ſupport a Diet of Fleſh and Water without Acids, as Salt, Vinegar, and Bread, without falling into a putrid

Fever. If his Diet conſiſted of Snails, Fiſh, eſpecially their Livers, Shell-Fiſh, Vipers, ravenous Birds, as ſome who feed upon Inſects and alkaleſcent Vegetables, the Effect would happen ſooner. Eggs and *Spaniſh* Wines taken in great Quantities, without Exerciſe, will occaſion a Fever. Abundance of good Blood and laudable Juices diſpoſeth towards this alkaleſcent State; ſo do likewiſe long Abſtinence, (by which the Fluids are depriv'd of a Dilution of the cooling Emulſion of freſh Chyle. See *Prop.* VIII. *Chap.* II.) great Strength of the Bowels, and a right State and Abundance of Bile. Bile is an Anti-acid. Another Cauſe is a vigorous Action of the Veſſels, through which the Juices circulate, which is the Reaſon that ſtrong, healthy, and young People are more in peril by peſtilential Fevers, than the weak, and old.

Violent animal Motion produceth this alkaline State. Two Bones rubb'd hard againſt one another, or with a File, produce a fœtid Smell. It is poſſible to produce a Gangrene by ſtrong Friction, and yet Stagnation of the Fluids turns them putrid.

The Effects of ſuch an alkaleſcent State in any great degree, are Thirſt, and a Dejection of Appetite, which putrid things occaſion more than any other; (thoſe who are troubled with Acidity have often a bad Digeſtion, but a craving Appetite) nidoroſe Eructations, which are different from acid, Foulneſs of the Tongue and Palate, a bitter and hot Taſte in the Mouth, Thirſt, Sickneſs, Loathing, bilious Vomitings and Dejections of a cadaverous Smell, * iliacal Pains with Heat. Theſe are the Effects of it in the alimentary Diet. Such a

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* *In the ſmall Guts, about the Navel.*

State diſſolves the Blood, and diſpoſeth it towards Putrefaction, hinders Nutrition; for no Chicken can be hatch'd of a rotten Egg, the Blood turning acrimonious corrodes the Veſſels, producing Hæmorrhages, Puſtules, red, lead-colour'd, black, and gangrenous, and almoſt all Diſeaſes of the inflammatory kind.

3. The Aliment of ſuch Perſons ought to be aceſcent Subſtances, much Bread, and Seaſoning of Vinegar, and other Acids without Spices; in a Word, ſuch as is deſcrib'd in the foregoing Chapter. Acids keep animal Subſtances from Putrefaction; for neither Blood, Fleſh, or Fat will putrify in Vinegar, or ſour Wine: The Effect of the ſtrongeſt Acids, even Oil of Vitriol, in putrid Fevers, is known by Experience, in which alkaline Spirits muſt be hurtful; farinaceous things, eſpecially ſuch as are made of Oats, are proper, as having an aceſcent Quality; it is a common Miſtake that Peo-

ple in ſuch a State ſhould forbear Wine; thin Wines, as Rheniſh, Moſelle mix'd with Water, are proper in a Fever. But when the Diſtemper is attended with great Heat, Milk mixed with Water is the propereſt Drink. The propereſt Seaſoning is Salt-Petre; Sea-Salt creates Thirſt, Water is the only Diluent; but as it has no Acidity in it, it is better mix'd with Limon, or with the Rob or Jelly of ſome acid Fruit, ſometimes the demulcent Aliment mention'd *Prop.* IV. of the foregoing Chapter, will be of great Uſe.

The muriatick Scurvy, induced commonly by too great Quantity of Sea-Salt, and common among Mariners, is rather an artificial than a natural Diſeaſe, ſpontaneous only in few who have a great Diſpoſition towards it. Its common Symptoms are a ſaline Taſte in the Spittle, Itching and red Eroſions of the Skin, great Thirſt, Drineſs of the Skin, a lixivial Urine ſometimes with a fatty Subſtance like a thin Skin a-top, Relief from watery and acid Subſtances. The Cure of this Diſtemper lies in a Diet of freſh unſalted things, watery Liquors acidulated, farinaceous emollient Subſtances, ſour Milk, Butter-Milk, acid Fruits, and avoiding of the hot Antiſcorbuticks of the Muſtard kind, the Rule of Diet is not much different from that in the alkaline Scurvy before-mention'd.

5. It is of great Importance to know whether cutaneous Diſtempers proceed from an acid or alkaline Cauſe, becauſe, according to the Difference of the Cauſe, there muſt be quite oppoſite Methods of Cure; they may be diſtinguiſh'd firſt by the Difference of the Diet that occaſion'd them; crude Aliment, farinaceous Subſtances, unripe Fruits, and other Aceſcents, will ſometimes produce the Scurvy and Itch, and even Leproſies depending on the ſame Cauſe, in

which volatile Salts, and ſuch as are taken from animal Subſtances are indicated. *Secondly*, From the Abſence of the concomitant Symptoms of the one, and the other: In the acid Acrimony there is not Thirſt, Heat, nor ſo great a Dejection of Appetite as in the Alkaline. *Thirdly*, The Eroſions of the Skin are not of ſo deep a Colour in the Acid as Alkaline. In general, an Attention to the Symptoms before enumerated may be a Guide to the Diet.

6. Another Conſtitution of the Fluids of a Human Body, may be properly call'd Glutinous or Phlegmatick: Phlegm amongſt the Ancients ſignified a cold viſcous Humour, contrary to the Etymology of the Word, which comes from φλέγω, to burn; but amongſt them there were two ſorts of Phlegm, cold and hot. A cold Tumor they call'd ſimple Phlegmonem; when it came from glutinous Blood, they

call'd it Phlegmonem Phlegmonodem.

7. Phlegm, or Pituite, is a ſort of Semi-fluid, it being ſo far ſolid, that one Part draws along ſeveral other Parts adhering to it, which doth not happen in a perfect Fluid, and yet no Part will draw the whole Maſs, as happens in a perfect Solid.

8. The Pituite, or Mucus, ſecern'd in the Noſe, Mouth, Palate, Stomach, Inteſtines, and Wine-Pipe, is not an excrementitious, but a laudable Humour, neceſſary for defending thoſe Parts from which it is ſecern'd, from Excoriations, as happens in the Noſe, when the Pituite is too thin. The Want of it in the Wind-Pipe occaſions Hoarſeneſs in the Gullet, and Difficulty of Swallowing. The Pituite defends the Inteſtines from the Acrimony of the * Ingeſta, and lubricates the Extremities of the Joints.

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* *Things taken inwardly.*

Therefore thoſe are miſtaken who imagine that Phlegm cannot be too much purg'd off; but when the Phlegm is either too viſcous, or ſeparates in too great a Quantity, it brings the Body into a morbid State; this viſcous Phlegm ſeems to be the * vitrious Pituite of the Ancients.

9. The firſt Seat of it is the alimentary Duct, where it creates Crudity, Dejection of Appetite, a Senſe of † Repletion and Sickneſs; for it hinders the natural Contraction of the Fibres, and that Senſe of Irritation which produceth Hunger. A Senſation of Fulneſs without eating, is a ſure Sign of a Phlegmatick Stomach. In the Inteſtines it occaſions a Tumour of the Belly, with an Atrophy in the reſt of the Body; for the viſcous Cruſt ſtops the Entry of the Chyle into the Lacteals. The Caſe of rickety Children. In the

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* *Like Glaſs.* † *Fulneſs.*

Body it often affects the Lungs. Phlegm may be ſo concocted in the Lungs by the Evaporation of its moſt liquid Parts, as to ſhut up the Paſſages of the Bronchea: and it makes Paleneſs in the Skin; for as it was obſerv'd before, our Aliment in the Form of Chyle before it circulates with the Blood, is whitiſh; by the Force of Circulation it runs through all the intermediate Colours, till it ſettles in an intenſe Red; as much as the Force of Circulation is deficient, ſo much will the Blood fall ſhort of that florid Colour, and Perſons in that Condition are call'd Leucophlegmatick; from this Phlegm proceed white, cold, Tumors, Viſcidity, and conſequently Immeability of the Juices; hence Lethargies in old People.

10. The Cauſes of this Phlegmatick Conſtitution are, *Firſt*, Viſcid Aliment, as of unripe Fruits, farinaceous Subſtances unfermented, and

taken in great Quantities. The Flowers of Grains, mix'd with Water, will make a ſort of Glue. Meals have an Oil in them which makes their Parts adhere. *Secondly*, Great Loſs or Want of Blood, which is a natural Sope, preſerving itſelf and the Aliment from Coagulation by conſtant Motion. *Thirdly*, Weakneſs and Indigeſtion in the Alimentary Duct, which leaves the Aliment viſcous. *Fourthly*, A Defect, or bad Conſtitution of the Bile (which is the chief Reſolvent of the Aliment) phlegmatick and bilious Conſtitutions are oppoſite. *Fifthly*, Diſſipation of the moſt fluid Parts by Heat, or ſome great Evacuation; therefore profuſe Sweats, and Fluxes of Urine, diſpoſe towards this Conſtitution by thickening the Phlegm. *Sixthly*, Stagnation from the Debility of the Inſtruments of Excretion; for if the Pituite ſtagnates, it muſt grow viſcid from Heat. Theſe are the Cauſes and Symptoms of a Phlegmatick cold Conſtitution; but Spiſſitude attended with Heat, grows inflammatory. But no Cauſe is more frequent and powerful in producing this Diſtemper than a ſedentary Life, and no Remedy more effectual than Exerciſe.

11. The Symptoms point to the Cure. All the Methods of attenuating, mention'd *Chap.* V. *Prop.* IV. well fermented Bread, and well fermented Liquors; Fermentation deſtroys the Viſcidity of farinaceous Subſtances. High ſeaſon'd Aliment is proper for Phlegmaticks. Spices, Onions, Garlick, diſſolve Viſcidity. Water impregnated with ſome ſtimulating Subſtance, which both dilutes and attenuates. Hot Mineral Waters are the beſt Diſſolvers of Phlegm. All ſorts of Nouriſhment which promote Heat, and a vigorous Motion of the Blood, and for that Reaſon Broths made of the moſt volatile and alkaleſcent Parts of Animals.

12. A Diſeaſe oppoſite to this Spiſſitude, is too great Fluidity; the Symptoms of which are Exceſs of animal Secretions, as of Perſpiration, Sweat, Urine, Liquid Dejectures, Leanneſs, Weakneſs, and Thirſt. The Methods in ſuch a Caſe muſt be oppoſite to the former. Farinaceous Subſtances and watery Liquors, unfermented Gellies of animal and vegetable Subſtances, all ſuch things as are deſcrib'd, *Prop.* IV. *Chap.* V.

13. Another Conſtitution is the oily or fat; animal Fat is a ſort of amphibious Subſtance; it is ſciſſile like a Solid, reſolvable by Heat not greater than what is incident to Human Bodies, circumſcrib'd and contain'd in proper Veſſels, like a Fluid. The Symptoms of this Conſtitution are too manifeſt to want a Deſcription, it co-incides often with the plethorick and phlegmatick Conſtitutions above deſcrib'd. It is but one Species of Corpulency, for there may

be Bulk without Fat, from the great Quantity of muſcular Fleſh, the Caſe of robuſt People. An Animal in the courſe of hard Labour ſeems to be nothing but Veſſels, Bones, and muſcular Fleſh. Let the ſame Animal continue long in Reſt, it will perhaps double its Weight and Bulk. This Superaddition is nothing but Fat, or Oil; and in this Senſe an Animal perhaps never arrives at its full Growth.

14. The common Cauſes of this Diſtemper are a particular, and perhaps a * gentilitious Diſpoſition of Body, which ſeems to conſiſt in the Chylopoetick or Organs of the firſt Digeſtion being ſtrong, and the Fibres of the circulating Veſſels, eſpecially thoſe about the *Panniculus carnoſus* being lax, according to the Doctrine of the ſecond Chapter. By the Action of the Fibres of the Veſſels upon the Fluids, the oily Parts of the Chyle are intimately mix'd with the

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* *Family*

Blood, which by *Prop.* III. *Chap.* II. will ſwim a-top of it ſeveral Hours after Repaſt; when this Action is not ſtrong enough, and the Chyle extremely copious, perhaps the thicker Oil is never intirely ſubdu'd; ſome ſorts of cramm'd Fowl have always a milky Juice ſwimming a-top of their Blood. *Secondly*, Quantities of oily Nouriſhment, Milk, Butter, and oily fermented Liquors. *Thirdly*, All things which occaſion Coldneſs in the Skin ſo as to ſtop Perſpiration, by which the oily Parts are congeal'd, which Heat reſolves and attenuates. The Inhabitants of cold moiſt Countries are generally more fat than thoſe of warm and dry; but the moſt common Cauſe is too great a Quantity of Food, and too ſmall a Quantity of Motion, in plain *Engliſh*, Gluttony and Lazineſs. I am of opinion that ſpare Diet and Labour will keep Conſtitutions, where this Diſpoſition is the ſtrongeſt, from being fat. You may ſee in an Army forty thouſand Foot-Soldiers, without a fat Man amongſt them; and I dare affirm, that by Plenty and Reſt twenty of the Forty ſhall grow fat. Much Sleep increaſeth Fat, not only as it is a long Ceſſation of Muſcular Motion, but by relaxing the ſolid Parts; the greateſt Cures of this Diſeaſe have been perform'd by little Sleep. This by the way.

15. The Oil in Animals is neceſſary for many Purpoſes; in all for Motion, in ſome for Nouriſhment; ſuch accumulate Fat in the Summer, which ſerves to refreſh the Blood in the Penury of Aliment during the Winter, and for that purpoſe ſome Animals have a quadruple Caul: But the too great Abundance of Fat ſubjects Human Conſtitutions to the following Inconveniencies.

16. *Firſt*, It hinders the Motion of the Joints, making them more heavy, by filling the Spaces occupy'd by the Muſcles when they contract and ſwell.

Secondly, It ſubjects them to all the Diſeaſes depending upon a defective projectile Motion of the Blood; for the Blood flows through the Veſſels by the Exceſs of the Force of the Heart above the incumbent Preſſure, which in fat People is exceſſive; and as want of a due Quantity of Motion of the Fluids increaſeth Fat, the Diſeaſe is the Cauſe of itſelf. *Thirdly*, To Suppurations, of which the *Membrana adipoſa* is the chief Seat. *Fourthly*, To Danger in inflammatory Diſtempers; a Fever reſolves many things which ſtagnate, and amongſt others the Fat, which being mix'd with the Blood, turns volatile, and occaſions an Acrimony much more dangerous than the ſaline; for Salts can be diluted with Water which Oils cannot. That the Fat is diſſolv'd by Fevers, is evident from the great Loſs of Fat which People undergo in Fevers. Amongſt thoſe, and many other bad Effects of this oily Conſtitution, there is one Advantage, that ſuch of them who arrive to an advanc'd Age, are not ſubject to Stricture and Hardneſs of Fibres, the Effect of old Age.

17. The Cauſes above-mention'd lead directly to the Cure; as it is the Product of Gluttony and Lazineſs, Exerciſe and Abſtinence is the Antidote; it has been obſerv'd that a feveriſh Heat reſolves Fat, and therefore what produceth this Effect in a ſmall degree, ſo as not to endanger the Life of the Patient, muſt be proper, ſuch are all acrid and ſtimulating Subſtances. Salt, Pepper, Garlick, Onions, Vinegar, *&c.* taken in Quantities, will produce a momentary Fever. Salt taken in great Quantities will reduce an animal Body to the great Extremity of Aridity, or Drineſs. The Ancients were ſo ſenſible of the Force of Stimulating in this Caſe, that the celebrated Remedy againſt Fat was a certain Quantity of the Vinegar of Squills taken

every Morning; for the ſame Reaſon, ſaponaceous Subſtances, as Sugar, Honey, the Juices of ripe Fruits, Pot-Herbs, with Abſtinence from fat Meat, and even an entire Milk-Diet, by its Thinneſs, are very effectual. Unfermented watery Liquors are hurtful only as they relax; but on the other hand, Quantities of oily fermented Liquors commonly increaſe the Diſeaſe. All things which promote the animal Secretions, eſpecially Sweat, and inſenſible Perſpiration, and for that Purpoſe even Water taken in Quantities are ſometimes uſeful. Salts mix'd with Fat, harden it, and acid things congeal Oil; Spirit of Nitre will turn Oil of Olives into a ſort of fatty Subſtance; but Acids may be us'd as ſtimulating. If acid things were us'd only as Coolers, they would not be ſo proper in this Caſe, in which it is neceſſary to keep up a conſiderable degree of Heat; but for their fore-mention'd Qualities they are ſtrongly indicated in the inflammatory Diſtempers of fat People, where the Oil diſpoſeth to a rancid Putrefaction; but Abſtinence being the chief dietetick Method of preventing or curing the Diſeaſe, leads me to ſay ſomewhat of the Quantity of Aliment in general.

18. By *Prop.* VIII. *Chap.* II. The frequent Repetition of Aliment is neceſſary, not only for repairing the Fluids and Solids, but to keep the Fluids from the putreſcent alkaline State, which they acquire by conſtant Attrition without being diluted; from whence it follows, *Firſt*, That long Abſtinence may be the Parent of great Diſeaſes, eſpecially in hot bilious Conſtitutions, and extremely painful to acid Conſtitutions by the uneaſy Senſation it creates in the Stomach. *Secondly*, That the Quantity of Aliment neceſſary to keep the Animal in a due State of Vigour, ought to be divided into Meals at proper

Intervals in the natural Day, by which Method neither the chylopoetick Organs, nor the Blood-Veſſels are overcharg'd, nor the Juices depriv'd too long of freſh Recruits of Chyle. *Sanctorius* confirms this Maxim in his Doctrine of Perſpiration.

19. The great Secret of Health is keeping the Fluids in due Proportion to the Capacity and Strength of the Channels through which they paſs; but the Danger is leſs when the Quantity of the Fluid is too ſmall, than when it is too great; for a ſmaller Quantity of Fluid will paſs where a larger cannot, but not contrariwiſe.

20. When the Quantity of the Fluid is too ſmall, the elaſtick Power of the Canal (in which Life conſiſts) exerts itſelf with too great a Strength upon the Fluid. In which Caſe there muſt follow too great a Diſſipation of the Fluid, Drineſs, and a gradual Decay. In too great Repletion, either the elaſtick Force

of the Tube is totally deſtroy'd; or if it continue proportional to the degree of Extenſion, like a Bow too ſtrongly drawn, it throws the Fluid with too great a projectile Force forward through the Veſſels, and back upon the Heart, and ſubjects the Animal to all the Diſeaſes depending upon a Plethory, and may bring it into immediate Danger. Therefore the Diſeaſes depending upon Repletion are more acute and dangerous than thoſe that depend upon the contrary State. The Inſtances of Longevity are chiefly amongſt the Abſtemious. Abſtinence in Extremity will prove a mortal Diſeaſe, but the Experiments of it are very rare.

21. Such as have an imperfect Circulation through any Organ of the Body, ſhould never charge their Veſſels with too great a Quantity of Chyle; this was obſerv'd *Prop.* II. *Chap.* II. of the Lungs, and is equally true in any other Caſe, as in Headaches,

aches, which eating little relieves, and eating and drinking much occaſion. A Senſation of Drouſineſs, Oppreſſion, Heavineſs, and Laſſitude, are Signs of a too plentiful Meal, eſpecially in young People.

22. The Meaſure of inſenſible Perſpiration diſcover'd by weighing, is the beſt Rule of Diet; therefore in fat People the Uſe of vaporoſe or perſpirable Food, and Exerciſe (both which increaſe Perſpiration) are proper.

23. The Conſtitution of the Air diſpoſeth the Inhabitants of one Country more to be fat, than that of another. *Sanctorius*'s Experiment of Perſpiration being to the other Secretions as 5 to 3, does not hold in this Country, except in the hotteſt time of Summer; ſo that the Action of *Paduan* Air in promoting Perſpiration the whole Year round, is equal to ours in the Month of *Auguſt*.

24. From the foregoing Doctrine, a common Caſe both of fat and lean Men having great Stomachs may be accounted for; by the laſt having a great Perſpiration, and ſome of the perſpirable Matter in the firſt not ſufficiently attenuated, ſtopping at the Surface of the Skin, and as it were carried about him. Hunger is only a Warning of the Veſſels being in ſuch a State of Vacuity as to require a freſh Supply of Aliment; after Secretions the Veſſels of the fat and lean Man are equally empty, for the Fat is as much out of the Thred of Circulation as what is evaporated, and perhaps the Fat in that Caſe becomes like a morbid Excreſcence, requiring a ſuperfluous Nutrition.

25. Infants and old People ſupport Abſtinence worſt. The firſt from the Quantity of Aliment conſum'd in Accretion, the laſt from their Weakneſs, and the ſmall Quantity of Aliment taken at once. The

middle-aged ſupport it the beſt, becauſe of the oily Parts abounding in the Blood.

26. From the foregoing Principles follow naturally the Hippocratical Rules of Diet in Fevers, of giving more or leſs, more thick, or more thin Aliment, according to the foreſeen time of the Duration of the Fever; for Example, in an Ephemera none, becauſe of its Termination in one Day, in a Fever of four Days Duration leſs than in one of eight. And as the Fever comes to its Height, ſtill ſubtracting from the Quantity of Aliment, and making it more diluent and thin.

27. We come now to what we may call the earthy or atrabilarian Conſtitution, where the ſpirituous and moſt fluid Parts of the Blood are diſſipated, that is the Spirit, Water and ſubtile Oil ſo much evaporated as to leave the Salts, Earth, and groſſer Oil in too great a Proportion.

portion. The Blood grows darkiſh and thick, ſuch a Conſtitution the Ancients call'd Atrabilarian, or Melancholick: Melancholy ſignifying in *Greek*, black Gall; whether there be any ſuch Humour as black Gall, is only a Diſpute about Words. *Hippocrates* gave ſuch an Humour this Name, and that is ſufficient; beſides it is Matter of Fact, that in the Extremity of this Diſeaſe, the Gall itſelf will turn of a blackiſh Colour, and the Blood verge towards a pitchy Conſiſtence.

28. The Signs of a Tendency to ſuch a State, are Darkneſs or Lividity of the Countenance, Dryneſs of the Skin, Leanneſs, a penetrating quick Genius, a ſlow Pulſe and Reſpiration. The Cauſes of it are all ſuch as expel the moſt volatile Parts of the Blood, and fix the Reſidue: Great Applications of the Mind to one Object, either ſuch as produce Sadneſs, or great Joy, both which

equally diſſipate the Spirits, and immoderate Exerciſe in hot Air with unquench'd Thirſt: Aliments of hard Digeſtion, as dry'd and ſalted Fleſh, unripe Fruits, farinaceous Subſtances unfermented, and likewiſe immoderate Uſe of Spirituous Liquors.

The Effects of ſuch a vapid and viſcous Conſtitution of Blood, are Stagnation, Obſtructions, Acrimony, Putrefactions, Viſcidity, an imperfect Secretion of the Gall, a defective Circulation, eſpecially in the lateral Branches deſtined to ſeparate the more fluid Parts, and therefore viſcous, and ſparing Secretions in the Glands: The Blood moving too ſlowly through the * celiack and meſenterick Arteries, produce various Complaints in rhe lower Bowels and † Hypochondres; from whence ſuch Perſons are call'd Hypochondriack:

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* *Arteries of the Lower Belly.*
† *Under the ſhort Ribs about the Belly.*

Such as Senſation of Weight, Anxiety and Repletion, a bad Digeſtion; from whence different kinds of Aliment acquire ſuch a State as they affect of their own Nature; aceſcent, if the Diet is of acid Vegetables; and alkaline or nidoroſe, if of animal Subſtances, eſpecially Fat, which remains rancid ſo as the Spittle will ſometimes flame in the Fire. This Indigeſtion proceeds from the Inactivity of the Gall, which likewiſe occaſions a Conſtipation of the Belly, and a Difficulty of being purg'd. The Urine is ſometimes limpid, ſometimes thick, which latter is often a Sign of Recovery. The Obſtruction of the Pituite in the lower Belly, forceth it upon the ſalivary Glands, and produceth Spitting.

29. Such a State of the Fluids at laſt affects the tender capillary Veſſels of the Brain, by the Viſcidity and * Immeability of the Matter impacted

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* *What renders impaſſable.*

in them, and diſorders the Imagination, and at laſt produceth Corruption in the Bowels of the lower Belly.

30. It is plain, that the Removal of ſuch a Diſeaſe is not to be attempted by active Remedies, any more than a Thorn in the Fleſh, or pitchy Matter adhering to a Thread of Silk is to be taken away by Violence; what is viſcid, ought to be gently attenuated, diluted and carried off. That all Subſtances which do heat, will ſtill diſſipate the fluid Parts more, and conſequently increaſe the Diſeaſe: Therefore Water impregnated with ſome penetrating Salt, is found to have great Effects in this Diſtemper. The Diet ought to be oppoſite to the particular Acrimony, whether acid or alkaline, which it is eaſy to gueſs at by Nº. 5. of this Propoſition. It ought to be demulcent, in both Caſes light, and of eaſy Digeſtion, moiſtening, and reſol-

vent of the Bile; of ſuch Nature are vegetable Sopes, as Honey, and the Juices of ripe Fruits, ſome of the cooling, lacteſcent, papeſcent Plants, as Cichory, Lettuce, Dandelion, which are found effectual in hot Countries. The Diet proper for all the Intentions in this Caſe, the Reader may ſee in the foregoing Chapter.

PROP. VIII.

To draw a few general Inferences from the foregoing Doctrine.

From the Doctrine of this ſhort Eſſay it is as eaſy to determine the Rules of Diet in the different natural States, as in the different morbid States of a Human Body.

1. By *Prop.* VII. *Chap.* II. Infancy and Childhood demand thin copious nouriſhing Aliment, ſuch as lengthens their Fibres without breaking or hardening, becauſe of their Weakneſs

and State of Accretion. Milk has all thoſe Qualities.

2. By *Prop.* IV. Chap. II. The Solidity, Quantity and Strength of the Aliment is to be proportion'd to the Labour or Quantity of muſcular Motion, which in Youth is greater than any other Age, upon which Account a ſtrong and ſolid Diet would ſeem to be indicated; but as that Age is ſtill in a State of Accretion, their Diet ought ſtill to be emollient, and relaxing, copious, and without Acrimony.

3. The Diet of a Human Creature full grown, and in the State of Manhood ought to be ſolid, with a ſufficient degree of Tenacity, without Acrimony, their chief Drink Water cold, becauſe in ſuch a State it has its own natural Spirit and Air, (which Heat deſtroys) with a Quantity of fermented Liquors proportion'd to their natural Conſtitutions.

4. The Courſe of the Fluids through the vaſcular Solids and the common animal Functions without any Violence, muſt in length of time harden the Fibres, aboliſh many of the Canals, and make the Solids grow together; from whence Drineſs, Weakneſs, Immobility, Debility of the vital Force both of the firſt and ſecond Digeſtion. Loſs of Teeth, Depravation of Maſtication, the Condition of old Age, which therefore demands a Diet reſembling that of Childhood often repeated, but not ſo copious in proportion to the Bulk, emollient and diluting.

5. From the Doctrine of the fifth Chapter, it is likewiſe eaſy to determine the Inconveniences ariſing from the Exceſs of any one ſort of Diet. Too much Sea-ſalt produceth Thirſt, Hoarſeneſs, Acrimony in the Serum (which deſtroys its ſoft nutritious Quality) Eroſion of the ſmall Fibres, Pains, and all

the Symptoms of the muriatick Scurvy.

6. Acids taken in too great Quantities, eſpecially ſuch as are auſtere, as unripe Fruits, produce too great a Stricture of the Fibres, incraſſate and coagulate the Fluids; from whence Pains, Rheumatiſm and Gout, Paleneſs, Itch, and other Eruptions of the Skin: Subſtances extremely ſtyptick are hurtful to the Nerves, and occaſion Palſies.

7. Spices in too great Quantities occaſion Thirſt, Drineſs and Heat, quicken the Pulſe, and accelerate the Motion of the Blood, diſſipate the Fluids; from whence Leanneſs, Pains in the Stomach, Loathings, and Fevers.

8. Strong Liquors, eſpecially inflammable Spirits, taken in great Quantities, intoxicate, conſtringe, harden, dry, and ſtimulate the Fibres, and coagulate the Fluids. They corrode and deſtroy the inward Coat of

the Stomach and Inteſtines, and if Digeſtion be a Putrefaction, Spirits muſt by their natural Quality hinder that; * they produce Debility, Flatulency, Obſtructions, eſpecially in the Liver, Fevers, Leucophlegmacy, and Dropſies, as by their ſtimulating they raiſe the Spirits for a Moment, to which ſucceeds a proportional Depreſſion; they create a Habit and Neceſſity of continuing the ſame Courſe, and increaſing the Quantity. Liquors in the Act of Fermentation, as Muſt and new Ale, are apt to produce Spaſms in the Stomach, Colick and Diarrhœas.

9. A Diet of viſcid Aliment creates Flatulency and Crudities in the Stomach, Obſtructions in the ſmall Veſſels of the Inteſtines, in the Mouths of the Lacteals and Glands, Tumors and Hardneſs of the Belly, Coldneſs, Paleneſs

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* *Vide* Chiſelton's *Anatomy.*

neſs of the Skin, and Viſcidity in the Fluids.

10. A Diet of oily Nouriſhment relaxeth the Solids, and particularly the Stomach and the Inteſtines, (Monks who take a great deal of Oil are ſubject to inteſtinal Ruptures) it creates nidoroſe Eructations, Loathings, oily and bitter Vomitings, obſtructs the capillary Veſſels by hindering the Entrance of the watery and fluid Part, with which it will not mix; it creates Thirſt and Inflammations.

11. A conſtant Adherence to one ſort of Diet, may have bad Effects on any Conſtitution. Nature has provided a great Variety of Nouriſhment for Human Creatures, and furniſh'd us with Appetites to deſire, and Organs to digeſt them (there is a moſt curious Bill of Fare in Sir *Hans Sloan*'s Natural Hiſtory of *Jamaica*) as Aliments have different Qualities; a conſtant Adherence to

one ſort, may make the Conſtitution verge to ſome of the Extremes mention'd in this Chapter; for healthy People, *Celſus*'s Rule I. Chap. I. is a good one, *Sanus homo qui bene valet & ſuæ ſpontis eſt, nullis obligare ſe Legibus debet, nullum cibi genus fugere quo populus utitur, interdum in convivio eſſe, interdum ab eo ſe abſtinere, modo plus, modo amplius aſſumere,* &c. The Senſe of the whole Paſſage, is, That a healthy Man under his own Government ought not to tie himſelf up to ſtrict Rules, nor to abſtain from any ſort of Food in common Uſe; that he ought ſometimes to feaſt, ſometimes to faſt, ſometimes to ſleep, ſometimes to watch more than ordinary, *&c.* An unerring Regularity is almoſt impracticable, and the ſwerving from it, when it is grown habitual, dangerous; for every unuſual thing in a Human Body becomes a Stimulus, as Wine or Fleſh Meat to one not us'd to them; therefore *Celſus*'s Rule with the proper moral Reſtrictions, is a good one for People in Health, and even in Perſons diſeas'd in any of the Senſes of this Chapter, as too ſtrict, too lax, acid and bilious, *&c.* A conſtant Adherence to one ſort of Diet may carry the Caſe beyond a Cure, to the contrary Extreme.

12. General Rules about Diet, without Regard to particular Conſtitutions, are abſurd.

13. That with Regard to different Conſtitutions, the common Diſtinction of Diet into Vegetable with Water, and Animal with fermented Liquors, is not proper and compleat. *Firſt*, Becauſe in the Enumeration of Conſtitutions in this Chapter, there is not one that can be limited and reſtricted by ſuch a Diſtinction, nor can perhaps the ſame Perſon in different Circumſtances be properly confin'd to one or the other. *Secondly*, Becauſe a ve-

getable Diet is not characteriz'd, there is not a general alimentary Quality in which all Vegetables agree; there are Vegetables, acid, alkaline, cooling, hot, relaxing, aſtringent, acrid, and mild, *&c.* Uſeful or hurtful, according to the different Conſtitutions to which they are apply'd, there may be a ſtronger Broth made of Vegetables than any Gravy-Soup.

14. As Fleſh Diet is generally alkaleſcent, and many Vegetables are acid and cooling, People of hot bilious Conſtitutions find themſelves extremely well in a vegetable Diet and Water, and the ſame Perſons perhaps had enjoy'd their Health as well with a Mixture of Animal Diet qualify'd with a ſufficient Quantity of Aceſcents, as Bread, Vinegar, and fermented Liquors.

15. The Oil of moſt Vegetables, in which their nutritious Quality chiefly conſiſts, ſeems not to be ſo hard of Digeſtion as that of

Animals; fat Meat is harder to digeſt than the moſt oily Plant taken as Aliment: Sick People could not take ſo great a Quantity of melted Fat, as they can of Oil of ſweet Almonds.

16. Animal Subſtances are more nouriſhing, and more eaſily tranſmutable into animal Juices, than Vegetable, and therefore a vegetable Diet is more proper for ſome Conſtitutions, as being leſs nouriſhing; tho' ſome Vegetables, as Carrots and Turnips, are fattening to Animals who live only on Vegetables.

17. As the Qualities of Plants are more various than thoſe of animal Subſtances, a Diet of ſome ſorts of Vegetables may be more effectual in the Cure of ſome * chronical Diſtempers, than an animal Diet.

18. The fibrous or vaſcular Parts of Vegetables ſeem ſcarce changeable

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* *That do not kill ſoon.*

in the alimentary Duct. The Dung of Horſes is nothing but the Filaments of the Hay, and as ſuch, combuſtible.

19. Vegetables abound more with aerial Particles, than animal Subſtances, and therefore are more flatulent.

20. Man is by his Frame as well as his Appetite a carnivorous Animal; the Inſtruments of Digeſtion are ſo well adapted to the proper Food of each Animal, that from the Structure of the Firſt, it is eaſy to gueſs at the Second. Moſt Quadrupedes that live upon Herbs, have inciſor Teeth to pluck and divide them: after they are ſwallow'd, they are brought up again from one Stomach to receive a new Alteration by a ſecond Chewing; after that, the Maſs ſo prepar'd paſſeth through four Stomachs of different Figures and Structure, before it comes into the Inteſtines. This is the Caſe of

ruminating Animals, except ſome few, as of Hares, who have but one Stomach, by which it appears, that Nature is at a great deal of Labour to tranſmute Vegetable into Animal Subſtances: Therefore Herb-eating Animals, which don't ruminate, have ſtrong Grinders, and chew much. There have been ſeveral Inſtances of ruminating Men, and that Quality leaving them, was a Symptom of approaching Sickneſs, Vid. *Philoſoph. Tranſact. & Bonet. Sepulchret. Anatom.* Granivorous Birds have the Mechaniſm of a Mill, their Maw is the Happer which holds and ſoftens the Grain, letting it drop by degrees into the Stomach, where it is ground by two ſtrong Muſcles, in which Action they are aſſiſted by ſmall Stones which they ſwallow for the Purpoſe; and becauſe this Action of Grinding cannot be perform'd by the weaker Stomachs of their Young, many of them, as Pigeons, half digeſt the Aliment before they give it to their Young. Some Birds that live upon Subſtances eaſily diſſolvable, as Worms, Eggs, have the Coats of the Stomachs ſmooth, as Cuckows. Birds of Prey that live upon animal Subſtances, have membranaceous, not muſcular Stomachs.

The beſt Inſtruments for dividing of Herbs are inciſor Teeth; for cracking of hard Subſtances, as Bones and Nuts, Grinders, or Mill-Teeth; for dividing of Fleſh, ſharp-pointed or Dog-Teeth, which ſeem to be ſo neceſſary for that Purpoſe, that an Eagle has ſuch Teeth not in his Bill, but two at the Root of his Tongue to hold his Prey, and three Rows in his Jaws at the Entry of his Gullet. A Human Creature has all the three ſorts of Teeth; the Teeth and Stomachs of ſome carnivorous Beaſts don't differ much from the Human. A Lion has generally fourteen in each Jaw; four Inciſors, four Canine,

nine, and ſix Grinders. ſharpiſh, for dividing of Fleſh as well as cracking of Bones. A Human Creature has commonly ſixteen Teeth in each Jaw, two of them only Canine. The inward Coat of a Lion's Stomach has ſtronger Folds than a Human, but in other things not much different. The Stomachs of Water-Fowl that live upon Fiſh are Human; therefore it ſeems that Nature has provided Human Creatures with Inſtruments to prepare and digeſt almoſt all ſorts of alimentary Subſtances, as Herbs, Grain, Nuts; by the Structure of their Parts as well as Appetites, they are plainly carnivorous.

21. It has been objected againſt this Doctrine, that * Granivorous Animals have a long Colon and a Cæcum, which in Carnivorous are wanting. Now it is well known

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* *That live upon Grains or Seeds.*

that a Man has both, Vid. *Philoſophical Tranſactions*; to this it is anſwer'd, That the Obſervation is not true without Exceptions, many carnivorous Animals have neither Colon nor Cæcum, and many granivorous have both. There are Animals not carnivorous that have a large Cæcum, and no Colon, and others that have neither.

There are carnivorous Animals, I mean ſuch as eat Fleſh ſometimes, that have both Colon and Cæcum; but as the Obſervation is generally true, it proves at leaſt that Mankind is deſign'd to take vegetable Food ſometimes, and it is a freſh Inſtance of Nature's being at more Labour to aſſimilate Vegetable into Animal Subſtances, by affording them a longer and more retarded Paſſage.

22. Carnivorous Animals have more Courage, muſcular Strength, and Activity, in proportion to their Bulk; which is evident by comparing

the Cat-kind, as Lions, Tigers; and likewiſe the Dog-kind with Herb-eating Animals of the ſame Bulk. Birds of Prey excel Granivorous in Strength and Courage. I know more than one Inſtance of iraſcible Paſſions being much ſubdu'd by a vegetable Diet.

23. Fermented Liquors are proper, and perhaps neceſſary for ſuch as live upon an Animal Diet; for Fleſh, without being qualify'd with Acids, as Bread, Vinegar, and fermented Liquors is too alkaleſcent a Diet; and Wine moderately taken, rather qualifies the Heat of Animal Food, than increaſeth it. Water is the only Diluter, and the beſt Diſſolvent of moſt of the Ingredients of our Aliment. It is found by Experience, that Water digeſteth a full Meal ſooner than any other Liquor; but as it relaxeth, the conſtant Uſe of it may hurt ſome Conſtitutions. As it contains no Acid, it is impro-

per with a Diet that is intirely alkaleſcent.

The Doctrine laid down in this *Eſſay*, is in moſt Particulars (I do not ſay in all) conform to that of the divine *Hippocrates*, as appears by ſeveral Paſſages of his Works, particularly of his Books of Diet, of his Method of Diet in acute Diſeaſes, and *Galen*'s Commentaries both upon thoſe Books, and ſome others of his Works. I ſhall inſtance in ſome few Particulars, as far as relates to that Part of Diet call'd Aliment, without referring to the Editions, Books and Pages, which would be of ſmall Uſe to my Readers. The Maxims of this great Man are, That Health depends chiefly upon the Choice of Aliment.

That the Phyſicians before his Time were to be blam'd for not preſcribing Rules of Diet.

That he who would skilfully treat the Subject of Aliment, muſt conſider the Nature of Man, the Nature of Aliments, and the Conſtitution of the Perſon who takes them.

In his Books of Diet, he deſcribes the Qualities of all the Subſtances which Mankind generally feed upon.

As of all ſorts of Fleſh, many of which are not in Uſe amongſt us; as of Dogs, Foxes, Aſſes, Horſes.

That the Fleſh of wild Animals is drier than that of Tame; of Stall-fed, than of thoſe fed by Paſturage.

That the Fleſh of Animals, in the Vigor of their Age, and of ſuch as are caſtrated, is beſt.

That of Animals which have not us'd hard Labour, is tendereſt.

That Beef is bilious, that is, alkaleſcent, as all Fleſh Meat is.

That the Fleſh of hot dry Countries is moſt nouriſhing.

He is very particular as to manner of Cookery, that Roaſting deſtroys the Humidity.

That ſalted Fleſh ſhould be macerated and moiſten'd.

That ſalted Fleſh dries, attenuates, and moves the Belly.

He is is likewiſe very curious in tempering the Qualities of his Meats, by Seaſonings of contrary Qualities.

He deſcribes the Qualities of the Fleſh of moſt ſorts of Fowl; that the Fleſh of granivorous Birds is not ſo moiſt and oily as that of Ducks; he is particular as to the Qualities of Fiſhes freſh and ſalted, and of all Vegetables both Alimentary and Medicinal; that Onions, Leeks, Radiſhes, *&c.* are hot and acrimonious; that ſome of them, as Muſtard and Creſſes, will occaſion a * Dyſury; that others, as Lettuce, are cooling and relaxing; Celery, diuretick; Mint, hot; that the Cabbage kind reſolve the Bile; that ſuch Herbs as are odorous, are heating; Legumes are flatulent;

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* *Difficulty of Urine.*

tulent; ripe Fruits, laxative; and unripe, aſtringent.

That unripe Cucumbers are hard of Digeſtion.

That the Fruits of the Earth in hot Countries are drier and hotter than in cold.

He is no leſs exact in deſcribing the Qualities of Milk, Whey, all ſorts of Bread and Water, which he chooſes clear, light, without Taſte or Smell, drawn not from Snow, but from Springs, with an Eaſterly Expoſition; tho' he ſeems to have known ſomething of Mineral Waters, he ſays nothing of the Uſe of them.

He is no leſs accurate in the Deſcription of the Qualities of ſeveral ſorts of Wines, Black, White, Auſtere, Oily, Thin, with the proper Uſes of them, by which it appears that Wine was ſeldom or never drunk in his Country without Water. He allows Wine unmix'd after great Diſſipations of the Spirits by Fatigue, and regulates the Quantities of it according to the Seaſons.

He likewiſe conſider'd the Medicinal Qualities of Aliments, and tells you, that of Aliments ſome are laxative, ſome moiſten, ſome dry, ſome bind, ſome move Urine.

Indeed the Qualities which he aſcribes to alimentary Subſtances, are the four in common Uſe amongſt the Ancients, as hot, cold, moiſt, and dry; according to thoſe, his Notions are often very juſt and inſtructive, and nothing can be more ſo than what follows; That acid, acrid, auſtere and bitter Subſtances do not nouriſh, but by their Aſtringency create Horror, that is, ſtimulate the Fibres; that ſweet, oily, and fat things are nouriſhing and anodyne; that Water dilutes and cools; that Honey is cleanſing; and Vinegar profitable to bilious Conſtitutions: No leſs judicious are his Intentions in the Cure of Diſeaſes by Aliment.

That Diſeaſes depend on the Parts contain'd, and the Parts containing, that is, on the Fluids and Solids.

That the ſolid Parts were to be relax'd or aſtricted as they let the Humours paſs, either in too ſmall or too great Quantities.

That Animals conſiſt of Fire and Water, which Diviſion is not ſo uncompleat as one may imagine; for by Water he ſeems to underſtand the unactive, and even the ſolid Parts; and by Fire all the volatile and active Parts, and that the Difference of Conſtitutions, conſiſts in the Exceſs or Defect of theſe Principles; and he compares the due Mixture of them to a Sort of Harmony.

That there are in a Human Body, Bitter, Salt, Sweet, Acrid, and Inſipid.

That Contraries are the Remedies of their Contraries.

That Health conſiſts in a due Proportion of Blood, Pituite, and Gall.

That Redundance of Blood and Gall are the Cauſes of acute Diſtempers.

That long Abſtinence occaſions Bitterneſs in the Mouth, and beating of the Temples; and he finds fault with the Phyſicians that ſtarv'd their Patients in the beginning of a Diſtemper, and gives a Reaſon for it conformable to the Principles laid down in this *Eſſay*, That it dry'd too much, that is, the liquid Parts were diſſipated.

That a Man cannot be healthy and digeſt his Aliment without Labour, and that the Quantity and Kind of Diet muſt bear a due Proportion to the Labour. His Commentator *Galen* lays down this Aphoriſm.

Young, hot, ſtrong, and labouring Men may feed on Meats giving both a hard and groſs Juice (as Beef, Bacon, powdered Fleſh and Fiſh, hard Cheeſe, Rye-Bread, and hard Eggs, *&c.*) which may nouriſh ſlowly, and be concocted by Degrees; for if they ſhould eat things of light Nouriſhment, either their Meat would be too ſoon digeſted, or elſe converted into Choler.

And again, Milk is fitteſt for young Children, tender Fleſh Meat for them that are growing, and liquid Meats for ſuch as have acute Diſeaſes.

Hippocrates obſerves, that Paleneſs is the Effect of Acidity.

That the Choice of Diet ſhould be according to the Difference of Conſtitutions; as in phlegmatick Conſtitutions, Fiſh and Fleſh well ſeaſon'd: The Fleſh of Fowls (which is an alkaleſcent Diet) not many Vegetables, black auſtere Wines. In dry Temperaments, lenitive Fruits, Figs, Raiſins, and ſoft Wines. In ſuch as have a bad Digeſtion, and moiſt Bellies (the Caſe of acid Conſtitutions) the Fleſh of Fowl, which is a Diet both alkaleſcent and of eaſy Digeſtion; for ſuch as have dry Bellies, Pot-Herbs.

Galen his Commentator tells you, That bitter Subſtances engender Choler and burn the Blood, giving no general Nouriſhment to the whole; howſoever they may be acceptable to ſome one Part, that is (according to what was ſaid in this *Eſſay*) that they are a ſort of ſubſidiary Gall: And again, ſharp Spices are moſt unfit for tender Bodies, whoſe Subſtance is eaſily melted and inflam'd: However, ſtrong Men may eat them with groſs Meats, and conſequently by the Principles of the *Eſſay*, Spices, by their melting Quality, are proper for fat People: Meats over-ſalted are dangerous; Inflammations, Leproſies, Sharpneſs of Urine, and great Obſtructions happening to ſuch as uſe them much, agreeing with none but ſtrong Bodies, as Sailors, Soldiers,

diers, and Husband-men, accuſtom'd to hard Labour, and much Toiling.

Fat Meats are not good but for dry Stomachs; for in ſanguine and cholerick Stomachs, they are ſoon corrupted; in phlegmatick Stomachs, they procure Looſeneſs, and hinder Retention.

That when any Man is ſick or diſtemper'd, his Meats ſhould be of contrary Qualities to his Diſeaſe; for Health itſelf is but a kind of Temper gotten and preſerv'd by a convenient Mixture of Contrarieties. Accordingly, in Fevers the Aliments preſcrib'd by *Hippocrates*, were Ptiſans and Cream of Barley, Decoctions of ſome Vegetables likewiſe with the Mixture of ſome Acid, Hydromel, that is, Honey and Water, Oxymel, Honey and Vinegar, thin Wines without Flavour, diluted with Water, when there was no Tendency to a *Delirium*. Water, Vinegar, and Honey in Pleuriſies and Inflammations of the Lungs; in which Caſes ſometimes he mixeth Spices, which ſeem odd, but that muſt have been for promoting Expectoration; and even in Ulcers of the Lungs, he preſcribes Fat and Salt for the ſame Purpoſe; and to Women troubled with Pains after Child-bearing, he mixeth his Ptiſan with Leeks and Fat; which Practice no doubt he had found ſucceſsful.

He preſcribes great Quantities of Aſſes Milk, as far as an *Engliſh* Gallon in proper Caſes, eſpecially as a Reſtorative; and to ſuch as had hot, dry Conſtitutions, Aſſes Milk, Whey, and Abſtinence from Fat and Oil.

No leſs judicious are his general Maxims for preſerving of Health.

A Diet moderate in Quantity, with a due Degree of Exerciſe.

That ſuch as are of hot Conſtitutions ſhould abſtain from violent Exerciſes, uſe Bathing (in hot Water, rather than Unctions, feed upon Mays (which is his favourite Food) and Pot-Herbs.

That one muſt not accuſtom one's ſelf to a too regular Diet, becauſe the leaſt Error is dangerous.

That all ſudden Alterations in Extremes, either of Repletion, Evacuation, Heat, or Cold, are dangerous.

Galen, ſpeaking the Mind of *Hippocrates*, tells us, That the whole Conſtitution of Body may be chang'd by Diet.

That we ſhould take thoſe kinds of Meats which are beſt for our own particular Bodies, for our particular Age, Temperature, Diſtemperature, and Complexions; for as every particular Member of the Body is nouriſh'd with a ſeveral qualify'd Juice, ſo Labourers, and idle Perſons, Children and Striplings, old Men and young Men, cold and hot Bodies, phlegmatick and cholerick Complexions, muſt have diverſe Diets. It would be eaſy to produce a great many more Inſtances to prove the Conformity of the Doctrine of the

Eſſay, with the Notions and Practice of *Hippocrates*; but thoſe already mention'd are ſufficient, and may be of uſe to ſome Readers to confirm by Authority, what they will not be at the Trouble to deduce by Reaſoning.

PRACTICAL RULES
OF
DIET
In the various
Conſtitutions *and* Diſeaſes
OF
HUMAN BODIES.

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THE PREFACE.

THE former Part of this Treatiſe has been cenſur'd for two Faults; firſt for being obſcure; ſecondly, for not being ſo practical as it ought to be: As to the Firſt, I anſwer, That Obſcurity *may be taken in two Senſes, as Real, or as Relative to the Underſtanding of the Reader; if Obſcurity is taken in the firſt Senſe, I will venture to affirm, That it is unjuſtly blam'd upon that Account: Perhaps it may not be all true, but I am ſure it is intelligible. If Obſcurity is taken in the ſecond Senſe,* Euclid's *Elements may be ſaid to be obſcure: I freely own that I had made too partial a Judgment of the Capacity of ſeveral of my Readers; and yet it is true, That many, not bred up in the Profeſſion of Phyſick, underſtood the Whole; many, a great Part of it;*

and it was not poſſible to write it down to the Capacity of every Body.

The ſecond Fault, of its not being ſufficiently practical, I have endeavour'd to repair, by the Addition of this Second Part, which I was oblig'd to write in haſte, when the Diſtreſs both of my Mind and Body, beſides Buſineſs, render'd me very unfit for ſuch an Undertaking: All I can ſay for it is, That tho' it be leſs accurate, it may perhaps be more uſeful than the firſt, it being much ſuch a Work as an Almanack, of publick Benefit, but from which no body I believe ever propos'd any Reputation. It is a Collection of the ſcattered Precepts of the Firſt Part, and other new Rules, extended to the moſt common Diſeaſes as well as Conſtitutions of Human Bodies. I have ſtill follow'd the Method of the learned and induſtrious Boerhaave, *who has certainly ſtudied and taught this Part of the Profeſſion more than any that ever were before him.*

I cannot think it trifling nor unneceſſary to treat this Dietetick Part of Medicine by it ſelf with ſome Accuracy, for the following Reaſons: Firſt, *Becauſe the Parts of any Art or Science are often beſt underſtood when they are treated ſeparately:* Secondly, *Becauſe the Practitioners in Phyſick and Chirurgery are often fruſtrated in their Intentions by Errors in Diet committed*

mitted by their Patients, a Misfortune that I myſelf have felt ſeveral times, and, as I ſuppoſe, in common with others of the Profeſſion. Thirdly, *Becauſe ſome practical Rules of this ſort may be uſeful to ſuch as are remote from good Advice; and likewiſe to ſome coarſe Practitioners which they are obliged to make uſe of: By the Methods preſcrib'd in this ſhort Treatiſe, which are almoſt within the Reach of every Body, more Good and leſs Miſchief will be done in acute Diſtempers, than by Medicines improperly and unſeaſonably adminiſtred; and great Cures may be effected in Chronical Diſtempers, by a proper Regimen of the Diet. I hope I have done with this Subject. I was drawn in to write the Firſt Part by Accident, and to write the Second by ſome Defects in the Firſt; theſe are the cumberſome Perquiſites of Authors.*

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PRACTICAL RULES OF DIET

In the various CONSTITUTIONS and DISEASES of HUMAN BODIES.

CHAP. I.

Of the different Qualities and Effects of ALIMENTARY SUBSTANCES.

1. *Alimentary Subſtances, auſtere and aſtringent.*

AUSTERE, *aſtringent, vegetable Subſtances,* are ſuch as contain an acid eſſential Salt, combin'd with Earth, and very little Oil; as, Several ſorts of *Plumbs*, and ſome ſorts of *Pears*, diſtinguiſhable by their rough ſtyptick Taſte.

Quinces, which by their Quality are often uſeful to weak Stomachs, and in ſtopping of Fluxes of Blood.

Pomegranates, which contain a Juice ſtyptick, and extremely cooling.

Barberries, *Medlars*, *Cornelian Cherries*, all beneficial in Bloody-Fluxes.

Sorrel, uſeful in Spitting of Blood, and Stinking Breath.

Purſlain, ſucculent, ſubacid, with a cooling nitrous Salt.

Burnet, aſtringent, with a gentle ſpicy Quality, vulnerary.

Tamarinds, cooling, aſtringent, yet laxative to the lower Belly.

Capers, aſtringent and diuretick.

All *Pickles*, eſpecially *Samphire*, which is ſtimulating. Such ſort of Subſtances by their Acidity and aſtringent Quality offend ſome Stomachs.

There are *Wines* of the ſame Quality, known by their rough auſtere Taſte; as likewiſe all acidulated and chalybeat *Waters*.

Strong Waters or ſpirituous Liquors contract and harden the ſolid Parts moſt of all.

2. *Alimentary Subſtances ſoftening and relaxing.*

The Juices of moſt ſorts of ripe Garden Fruits, as *Cherries*, are cooling, and laxative to the Bowels; their Kernels are good for the Gravel in the Kidneys.

Strawberries, which by their fragrant Smell ſeem likewiſe to be cordial. The Seeds, which are obtain'd by ſhaking the ripe Fruit in Water, are an excellent Remedy againſt the Stone: The Juice of Strawberries and Limons in Spring-Water is an excellent Drink in bilious Fevers.

Oranges, thoſe that are ſweet are more relaxing than the bitter or *Seville* Oranges, which nevertheleſs are not heating; theſe are an excellent Remedy againſt the hot Scurvy.

Citrons and *Limons*, their Juices more cooling than that of Oranges. Sour Limons do not poſſeſs this relaxing Quality very much, they being ſomewhat ſtyptick.

Apples, which are likewiſe pectoral, cooling, and lenitive; they differ conſiderably as to the Kinds of them, and their Qualities may be eaſily known by their Taſte.

Pears have moſt of the ſame Qualities; ſome Kinds by their high Flavour ſeem to be more cordial than Apples.

Peaches, which are likewiſe cordial and pectoral.

Sweet *Plumbs*, thoſe of the auſtere Kind are aſtringent.

Mulberries, pectoral, corrective of the bilious Alkali.

Apricocks, unleſs mellow, are rather ſomewhat ſtyptick.

Gooſeberries, extremely ripe, are lenient; unripe, they are ſour, and rather aſtringent.

Currants are good in Spitting of Blood, extremely cooling, and ſomewhat aſtringent. The Jelly or Rob of Currants, mix'd with Water, is a moſt excellent Drink in bilious Fevers.

Grapes taken in moderate Quantities help the Appetite and Digeſtion; in great Quantities, they reſolve the Bile too much, and produce Fluxes; dry'd, they are pectoral.

Figs are great Subduers of Acrimony, uſeful in Hoarſeneſs and Coughs, extremely emollient, and by relaxing the Urinary Paſſages, diuretick, uſeful in bloody Urine; it has been always believed that the immoderate uſe of them generates Lice.

Plants of the low pomiferous Kind, as *Melons*, *Pompions*, *Gourds*, *Cucumbers*, contain a cooling Juice, with a nitrous Salt; that of Melons and the *Ananas* is rich and cordial; they are diuretick; and there are Inſtances, when eaten in great Quantities, they have produced bloody Urine; they ought to be taken faſting. The Juice of Cucumbers is too cold for ſome Stomachs, and ought not to be taken by ſuch as have thin and poor Blood; if the Stem upon which they grow be bruiſed, the Pulp of the Fruit grows bitter, and has the Effect of Coloquintids. The Juice of an unripe Cucumber is purgative. Cucumbers are uſeful in bloody Urine.

All Fruits which contain a ſubacid eſſential Salt, much Phlegm, and a ſmall Quantity of Oil, have this lenient Quality; as likewiſe the emollient Pot-Herbs; as, *Cole*, *Cabbage*, *Coleworts*, which are ſoft and demulcent, without any Acidity. The Jelly or Juice of red Cabbage, bak'd in an Oven, and mix'd with Honey, is an excellent Pectoral.

Lettuce, which has a milky Juice, with an anodyne or opiate Quality, reſolvent of the Bile, proper for melancholy People, diuretick, and good in Stranguries, eſpecially when eat raw; it is reckoned to increaſe Milk.

Cichory and *Dandelion* have ſome of the ſame Qualities, with a ſmall degree of Bitterneſs extremely agreeable to the Stomach, and not heating. The Juice of the Dandelion is a Remedy in intermitting Fevers.

Spinage, emollient, but not very nouriſhing; it is reckoned good in Inflammations of the Bowels.

Beets, emollient, nutritive, and relaxing.

Carrots, good in nephritical Caſes, antiacid, and fattening.

Parſnips, uſeful in phlegmatick Colicks; the Plant from which Apoponax is taken, is a ſort of Parſnip.

Skirrets, uſeful in bloody Urine, and Spitting of Blood.

Scorzonera, demulcent in the Small-Pox, Meazles, and peſtilential Fevers, and for Gouty People; the expreſs'd Juice better than the Decoction.

Goats-beard, an alimentary Root, has moſt of the Qualities of Scorzonera.

Emollient likewiſe are all farinaceous or mealy Subſtances.

Barley, which is deterging, tho' viſcous in a ſmall degree; the Decoction and Cream of Barley are proper in inflammatory Diſtempers.

Rice, nouriſhing, good in Hæmorrhages, or Fluxes of Blood.

Mays is not ſo eaſily brought to Fermentation as other Grains, therefore more viſcous.

Wheat, the propereſt of any Grain for Bread, which, when not intirely purged from the Bran, is laxative, and ſtimulating to the Bowels.

Rice, the Bread, more aceſcent and leſs nouriſhing than that of Wheat.

Oats, cleanſing, reſolving, and pectoral; Oatmeal and Butter outwardly apply'd dry the Scab on the Head.

Millet, diuretick, cleanſing, and good in Diſeaſes of the Kidneys.

Panick, aperient, boil'd with Milk, demulcent, temperating Acrimony.

Peaſe contain a ſoft Oil, without any ſpicy Quality; therefore are extremely demulcent, and temper Acrimony.

Beans and *Kidney-Beans* have the ſame Qualities; they are reckoned diuretick, and good for the Stone.

It has been commonly reckoned, becauſe of the Viſcoſity of Peaſe and Beans, that People who live a ſedentary Life ſhould not feed much upon them.

The *Animal Oils, Cream, Butter*, and *Marrow*, are all lenient and nouriſhing: Marrow is excellent in the dry Scurvy with crackling of the Bones, where it performs its natural Office.

Of all Drinks, *Whey* is the moſt relaxing, ſo are warm Water and Decoctions of mealy Subſtances, and *Panadas*, or Bread boil'd in Water.

3. *Diluting Subſtances.*

Water and *watery Liquors*, without any ſaline Subſtance; Decoctions of *mealy Subſtances*; *Robs* and *Gellies* of Garden Fruits in Water.

Reſolving is bringing a Fluid which is new concreted into the State of Fluidity again. Such are

All Subſtances which are ſaponaceous, or contain Salt and Oil; therefore moſt ripe *Garden Fruits* have this Quality, and *Honey* moſt of all vegetable Subſtances. Mere diluting diſſolves and carries off Salts.

4. *Anti-acid, or contrary to Acidity or Sourneſs, are,*

All *Animal Diet* in general, becauſe no Animal has any acid Salt in it, eſpecially Fleſh roaſted; tho' not ſo eaſy of Digeſtion as boil'd.

The *Animals* which feed on other Animals muſt have this Quality ſtronger than thoſe who feed on acid Vegetables; ſuch are moſt Fiſhes, all Birds which feed upon Worms and Inſects, ſeveral Kinds of Water-Fowl, Woodcocks, Snipes, and ſeveral Kinds of ſmall Birds, which for that Reaſon afford a higher Aliment than thoſe that feed upon Grains or other Vegetables.

The *Fleſh* of *Animals* differs according as they are terreſtrial, aquatick, or amphibious. Fiſhes contain much

Oil, and amphibious Animals participate ſomewhat of the Nature of Fiſhes, and are oily; and the ſame Species of Animals differs according to the Soil and Air it lives in, and the Nouriſhment which it takes, as thoſe in Marſhes and Mountains; the Fleſh of Oxen, Sheep, Deer, in different Paſturage; and this is in none more ſenſible than in Hogs Fleſh.

Young Animals from their Age and the Nature of their Aliment have more tender Fibres, and more ſuperfluous Humidity than old Animals, which have their Fibres tougher, and the Juices more exalted and reliſhing.

Mutton by Experiment is the moſt perſpirable of all animal Food, and Hogs Fleſh and Oiſters the leaſt.

The *Fleſh* of *Animals* which take and digeſt a great Quantity of Food, and conſequently uſe ſtrong Exerciſe, muſt be nouriſhing, becauſe they have ſtrong Sanguification, ſuch are

Pigeons; and the ſame is true of ſome Fiſhes.

The Nature of moſt ſort of animal Diet may be diſcovered by Taſte and other ſenſible Qualities, and ſome of thoſe general Rules above-mention'd, without particular Diſquiſitions upon every Kind.

Eggs are perhaps the higheſt, moſt nouriſhing and exalted of all animal Food, and moſt indigeſtible, becauſe no body can take and digeſt the ſame Quantity of them as of other Food.

Shell-Fiſh are nouriſhing, and their Oil is corrected by their Salts, which make it pungent and ſtimulating.

But, as was ſaid before, all Animal Diet is anti-acid or alkaleſcent.

Vegetables uſed in Aliment anti-acid are ſuch as of themſelves turn fœtid or ſtinking, rather than ſour.

All the *Cole* or *Cabbage* Kind.

Aſparagus diuretick or aperient; by the fœtid Smell which it gives the Urine it is ſuſpected to be hurtful to the Kidneys.

Parſley and *Celery*, both contain a pungent Salt and Oil, diuretick and aperient, bad in Bloody-Fluxes.

Garlick, *Rockambole*, *Onions*, *Shalot*, *Leeks*, theſe abound with a pungent volatile Salt and Oil, are extremely diuretick, and, when ſtimulating Diureticks may be ſafely us'd, are very effectual: Garlick has been found by Experience to be a very excellent Remedy in Jaundices and Dropſies, and in Aſthmas proceeding from a cold viſcous Phlegm. All theſe Plants are hurtful in Caſes where the Blood is too much diſſolv'd, in Spitting of Blood, and bloody Urine.

Creſſes, *Radiſhes*, *Horſe-Radiſhes*, *Muſtard*, abound likewiſe in their ſeveral degrees with a pungent Salt, and as they ſubdue Acidity, are very improper where the Blood verges to the contrary State of a putreſcent Alkali; and in general they are fitter for old People, and cold Conſtitutions, than the young and ſanguine. Muſtard is a very powerful Remedy in viſcous cold phlegmatick Caſes.

Dilſe, a Sea-Plant, antiſcorbutick. There are other Sea-Plants us'd as Aliment, which contain a temperate Sea-Salt, very uſeful in Scurvies; as Laver, which is the *Lactuca Marina*, or Sea-Lettuce, and Sea-Cole, or Cale.

Carrots, *Turnips*, *Parſnips*, are Anti-acids of a milder Kind.

Nettles, good againſt Hæmorrhages.

Such as abound with a ſoft Oil, which operate by blunting the Acrimony of the Salts, as moſt ſorts of *Nuts*; moſt of which are hard of Digeſtion, yet poſſeſs ſome good medicinal Qualities.

Walnuts are cordial, anti-hyſterick, and gently ſudorifick.

Hazle-Nuts, good againſt Spitting of Blood.

Cheſnuts are good in Female Weakneſſes, and afford a very good Nouriſhment.

Almonds, pectoral.

Piſtachos, nouriſhing and ſtimulating.

Olives are anti-acid by their Oil, but all oily Subſtances beget an Acrimony of another ſort.

Truffles, which have an exalted Oil, and a volatile Salt of a grateful Savour, are heating.

Morelles have ſome of the ſame Qualities; and ſo have *Earth-Nuts* and *Potatoes*, which are very nouriſhing.

Muſhrooms, which contain an Oil of a volatile Salt; therefore they are beſt corrected by Vinegar; ſome of them being poiſonous, make the reſt ſuſpicious; the poiſonous Kinds operate by a ſort of Suffocation, in which the beſt Remedy is Wine or Vinegar and Salt, and Vomiting as ſoon as poſſible.

Acidity is likewiſe cured by diluting, therefore *Water* is an Anti-acid.

5. *Acid Subſtances are,*

Moſt ripe Garden Fruits, fermented Liquors, ſmall Wines, with little Oil, and much Tartar, Vinegar, ſour Milk, Butter-Milk. Several Plants known by their Taſte, as Sorrel, *&c.* Thoſe of the mealy Kind are aceſcent, that is, being kept they turn ſour rather than corrupted and ſtinking.

6. *Thoſe things which reſolve glutinous and fat Subſtances, are*

Spices, as Cinnamon, Mace, Nutmeg, Cloves, Ginger, Pepper. Theſe abounding with a high exalted Oil, and volatile Salt, by which Principles they are heating, and act ſtrongly both on the Fluids and Solids; Ginger is perhaps one of the beſt of them. All Spices are bad for melancholy People.

Of the ſame nature are the *Vegetables* uſed in Seaſoning, as Thyme, Savory, Marjoram, Roſemary, Mint, Orange and Limon-Peel, Fennel, which contains a ſubtile Spice, balſamick, warm, and ſtimulating; Chervil, of the ſame nature; they are good in phlegmatick cold Conſtitutions: Sage is ſtimulating, drying, aſtringent; us'd in great Quantities it will produce Temulency, or Drunkenneſs.

All *Soaps* and *Soapy Subſtances*, and conſequently ripe Fruits, the Juices of pungent and aromatical Plants, all thoſe Subſtances reſolve Solids, and ſometimes attenuate or thin the Fluids.

7. *Stimulating.*

All *Salts* in general, both acid and alkaline; all acrimonious *Oils*, and all Subſtances that abound with them, for by their Oil they obſtruct the Extremities of the ſmall Veſſels, and by their Salts they irritate the Solids, conſequently all the Subſtances mentioned in the foregoing Article are ſtimulating, and all fermented *Spirits*, the Effect of which is very ſudden.

Extreme *Cold* ſtimulates, producing firſt a Rigor and then a glowing Heat; thoſe things which ſtimulate in the extreme Degree, excite Pain.

8. *Incraſſating or Thickeners of the Humours, are*

All things which expel the liquid Parts ſtrongly, ſo as to thicken what remains. Therefore violent Exerciſe or Labour produceth this Effect; the Blood of labouring People is more denſe than that of the ſedentary. A due Conſiſtence of the Blood is very neceſſary for Health, and this is acquir'd chiefly by Exerciſe; all things which provoke great Secretions, eſpecially Sweat, produce this Effect at laſt.

9. *What renders the Blood acrimonious or ſharp,*

Are ſuch things as increaſe its Velocity; for by mutual Attrition Salts are produc'd.

Whatever attenuates the Humours.

Whatever reſolves Concretions, and turns them fluid; for whatever putrifies, is acrid.

Acrimony is threefold: *Acid*, which is produc'd from Vegetables lying long in the Stomach; no animal Subſtance produceth Acidity, except Milk.

Great Quantities of *Oily Subſtances*, for *Animal Humours*, by Heat, ſtink and grow fœtid, like Oil.

Expreſs'd Oils are mild.

Diſtill'd Oils turn acrid.

Oils intirely deprav'd of their Salts are not acrid.

Alkaline Acrimony is produced by fix'd Salts, by fix'd Alkalis, and volatile Alkalis, taken in great Quantities; and by eſſential Salts of Vegetables, of which ſort are Sugar, Manna, and Honey.

Alkaline Acrimony is produc'd by all Vegetables which abound with a pungent volatile Salt and Oil, as Muſtard, Garlick, Onions, Horſe-Radiſh, Creſſes; and by all Spices. All things which create Pain, render the Humours ſharp.

10. *Abaters of Acrimony or Sharpneſs.*

Expreſs'd *Oils* of ripe *Vegetables*, and all Preparations of ſuch, as of Almonds, Piſtachos, and other Nuts.

Emulſion of the Seeds of Barley, Oats, *&c.*

Decoctions of farinaceous *Legumes*, as Peaſe, Beans, *&c.*

Native Animal *Oils*, as Fat, Cream, Butter, Marrow, eſpecially the laſt, which is excellent in ſome Scurvies.

All inſipid inodorous *Vegetables* are demulcent.

Jellies, *Broths* of Animal Subſtances not high ſeaſoned, acid Subſtances in reſpect of alkaline, and alkaline in reſpect of acid.

Fermented burning *Spirits* ſubdue Acidity, and are very often a preſent Remedy when the Stomach is affected with it. Spirit of Wine dulcifies Spirit of Salt, Nitre, or Vitriol; but then thoſe Spirits have other bad Effects.

Abſorbents, as Chalk, Crabs Eyes; but theſe are not alimentary, except calcin'd Hartſhorn, which has ſomething of this Quality.

Nothing abates Acrimony of the Blood more than an equable Motion of it, neither too ſwift nor too ſlow; for too quick a Motion produceth an alkaline, and too ſlow an acid Acrimony.

11. *Coagulators of the Humours.*

Thoſe things which expel the moſt fluid Parts, as in the Caſe of incraſſating, or thickening; and by thoſe things which ſuck up ſome of the fluid Parts, as Abſorbents.

All *Vegetables*, which make a black or purple Tincture with the Vitriol of *Mars*, ſuch as Galls do. Juices of unripe Vegetables, and the Juices of all auſtere Vegetables which coagulate the Spittle, and being mix'd with the Blood in the Veins would produce Polypus's in the Heart, and Death.

All burning fermented *Spirits* have this Quality in a ſtrong degree.

12. *Thoſe things which accelerate the Motion of the Blood, are*

All ſtimulating, diluting, and attenuating Subſtances; what relaxeth the Veins, as Frictions, Bathings, Compreſſions by Ligatures often remov'd, Sneezing, Coughing, Laughing, and ſeveral other natural Motions.

Thoſe things which take off the Cauſes of Acceleration, retard the Motion of the Blood.

13. *Thoſe things which increaſe Milk.*

What generates quickly a great Quantity of Chyle, as thin Broths, Ptiſanes of Barley or Oatmeal, Panadas, but nothing more than Milk with Salt and Sugar; Cream, if the Milk be not too thick, Malt Drink, not ſtrong, or ſtale; a due degree of Exerciſe or Labour. Eating much Fleſh-Meat abates Milk.

14. *Subſtances expectorating.*

Such as cleanſe and open, as mild vegetable Oils, ſuch as that of Almonds or Olives; ſoapy Subſtances, eſpecially Honey; Emulſions of farinaceous Subſtances, Decoctions of emollient Vegetables, Sugar.

Sometimes ſtimulating Subſtances are neceſſary to diſſolve viſcid Phlegm, and excite a Cough.

The mild Vapour of warm Liquids, eſpecially warm Water.

And ſuch things as are endued with an opiate Quality by incraſſating the Phlegm.

15. *Lenitive or laxative of the Belly.*

Animal Oils, freſh Butter, Cream, Marrow, Fat Broths, eſpecially of thoſe Parts which are about the Meſentery; Livers of Animals, becauſe of the Bile which they contain; the expreſs'd Oils of mild Vegetables, as Olives, Almonds, Piſtachos, and the Fruits themſelves; all oily and mild Fruits, as Figs; Decoctions of mealy Vegetables, theſe lubricate the Inteſtines; ſome ſaponaceous Subſtances which ſtimulate gently, as Honey, Hydromel, or boil'd Honey and Water, and even Sugar itſelf, eſpecially unrefin'd.

Such *lenitive* Subſtances are proper for dry atrabilarian Conſtitutions, who are ſubject to Aſtriction of the Belly, and the Piles, and will operate when ſtronger medicinal Subſtances are ſometimes ineffectual; but ſuch lenitive Diet hurts thoſe whoſe Bowels are weak and lax.

Lenitive are likewiſe watery Subſtances; and even common Water or Whey, drank in cool Air, and walking after it; ſour Milk and Butter-Milks have the ſame Effect.

There are other Subſtances which ſtimulate more, even new Milk, eſpecially Aſſes Milk, when it ſours on the Stomach; and Whey, turn'd ſour, will purge ſtrongly.

Jellies made of the ſolid Parts of Animals contain a ſort of ammoniacal Salt; Shell-Fiſh, as Oiſters, the ſame, by which they are lenitive;

moſt Garden Fruits, by the Salts which they contain, produce the ſame Effect; ſome of them, as Grapes, will throw ſuch as take them immoderately, into a *Cholera Morbus*, or incurable Diarrhœas; all Fruits when they have this Effect, are flatulent; Wine and ſpirituous Liquors are not ſo uſeful in ſuch a windy Colick, as Water, which is much the beſt Remedy after a Surfeit of Fruit. The expreſs'd Juices of ſeveral Vegetables, becauſe of their eſſential Salts, ſtimulate the Bowels.

All foſſil Salts, as Sea-Salt, Rock-Salt, *&c.* have this Quality; a Diet of ſalted Fleſh throws Ships Crews ſometimes into Diarrhœas.

16. *Diuretick.*

All *Decoctions*, *Emulſions*, *Oils* of emollient Vegetables, ſuch relax and lubricate the Urinary Paſſages; they ought to be taken in an empty

Stomach, an open Air, and with gentle Exerciſe.

Diluents, as Water, Whey, Tea, ſmall Ale without Hops.

Subſtances ſtimulating, by which Quality all Salts whatſoever are diuretick.

Soaps which reſolve ſolid Subſtances, any Salt, Oil, Salads of pungent Herbs, with Oil of Olives, and Vinegar, are diuretick.

By this ſaline Quality, the Juices of Shell-Fiſh, of Oiſters, Muſcles, Crabs, Crawfiſh, and the Soups made of them, are diuretick.

Vegetables which have little Oil, and a great Quantity of eſſential Salt, are diuretick, Parſley, Celery, Sorrel, Chervil, Eringo.

Vegetables which are aromatick and balſamick, Saffron, Aſparagus, Nutmeg; theſe affecting the Urine with an Odour, have ſome ſpecifick Quality of this Kind.

All *anodyne* Subſtances which take off Spaſms and Contractions of the membranous Parts, and all which ſubdue any particular Acrimony, are diuretick.

For provoking of Urine, one ſhould begin with the gentleſt at firſt, as the lenient, relaxing, diluent, demulcent, and laſt of all the ſtimulating.

The Blood may be cleans'd, and the Salts of it carried off perhaps better by Urine than any other Secretion.

17. *Sudorificks.*

Such things as relax the Veſſels of the Skin, by which Quality many things which are diuretick, are likewiſe ſudorifick; warm Water and Honey, Barley-water, Friction, and tepid Vapours, apply'd to the Skin, operate by this Quality.

Subſtances anodyne, by abating Spaſms, relax, and by that Quality prove ſudorifick.

Such things as diſſolve and dilute the Blood, thus cold Water.

Water, Vinegar, and Honey, is a moſt excellent Sudorifick us'd by *Hippocrates*; it is more effectual with a little Mace added to it.

Thoſe things which determine the Motion of the Fluids towards the extreme Parts, increaſe the Strength and Frequency of the Pulſe, as violent Exerciſe, all Cordials, Spices, thin and ſharp Wines, Juices of Limon, operate by theſe Qualities.

The Matter of Sweat is the moſt ſpirituous and nutricious Part of the Blood, nor is it to be forced without apparent Indications. It contains the ſame lixivial Salts with Urine.

Sweating often thickens the Blood, and ſometimes thins and diſſolves it.

Sudorificks are to be varied according to the Cauſe of the Diſeaſe which it is deſign'd to remove.

18. *Diaphoreticks or Promoters of Perſpiration.*

What helps the Organs of Digeſtion, becauſe the Attenuation of the Aliment makes it perſpirable.

Such things as conſtrict the Fibres, and ſtrengthen the ſolid Parts; Exerciſe to a degree leſs than what provokes Sweat.

Subſtances which ſtimulate in a ſmall degree.

Air, moderately warm.

There are likewiſe Aliments more and leſs perſpirable. *See* Sanctorius.

19. *Emenagogues.*

Such as produce a Plethora or Fulneſs of the Veſſels, conſequently ſuch as ſtrengthen the Organs of Digeſtion,

geſtion, ſo as to make good Blood, eſpecially Exerciſe; ſuch as carry off the Fœces and Mucus, deobſtruct the Mouths of the Lacteals, ſo as the Chyle may have a free Paſſage into the Blood.

Subſtances ſaline or ſoapy, that is, conſiſting of Salt and Oil.

Such as relax, and take off the Reſiſtance of the Veſſels of the Womb, Fomentations, and tepid Bathings of the lower Parts of the Body.

What accelerates the Reflux of the Blood from the lower Parts to the Heart, Friction, Walking, eſpecially Dancing.

What ſtimulates and promotes the Excretion of the Blood, eſpecially ſome of the Plants which abound with a pungent Salt, and a high exalted Oil, as thoſe us'd in ſeaſoning Aliment, Savory, Thyme, Marjoram, Penny-Royal, *&c.* Vapours acrimonious.

20. *Heat is produc'd in animal Bodies*

By the Application of hot things.

By increaſing of Attrition or Rubbing of the Fluids and Solids, to which Heat is proportional.

Therefore whatever increaſeth the Velocity of the Blood, by ſtimulating, heateth, as ſpirituous fermented Liquors; and when the Heat is increas'd, the Velocity of the Blood is certainly increas'd.

What increaſeth the Denſity of the Fluids, heateth, for a denſer Fluid is hotter than a rarer; and thus it is that Cold itſelf at laſt heateth.

Whatever ſtraitens the Veſſels ſo as the Channels become more narrow, muſt heat, becauſe in that caſe the Attrition is made greater; therefore ſtrait Clothes, thick Coverings, heavy and cold Air, but eſpecially cold Baths, heat: All who are ſubject to Hæmorrhages ought to avoid theſe things. In Conſumptions and Atrophy the Liquids are exhauſted, and the Sides of the Canals collapſe, therefore the Attrition is increas'd, and conſequently the Heat.

21. *Cold is produc'd in animal Bodies*

By Cauſes contrary to the former, *viz.*

By whatſoever diminiſheth the projectile Motion of the Blood, by weakening the Force of any Stimulus; therefore diluting things are cooling, as Whey, Water, Milk and Water, both as they abate Acrimony, and relax the Veſſels.

What is contrary to any particular Acrimony, is cooling, as alkaline Subſtances in reſpect to acid, and acid Subſtances in reſpect of alkaline; and ſoapy Subſtances, if the Heat proceeds from an oily or viſcous Cauſe.

What expels any Stimulus out of the Body, cools.

Thoſe things which attenuate and dilute by diminiſhing the Denſity of the Fluid; thus Nitres, and thoſe Vegetables, which have nitrous Salts in them, cool.

Tepid Baths cool by relaxing the Veſſels; and Air, when it is light, is more cooling, *cæteris paribus*, than when it is heavy, becauſe it compreſſeth the Veſſels leſs.

All thoſe who have lax Fibres and Veſſels are naturally cooler than thoſe that have ſtrait.

22. *Cephalick.*

Such things as attenuate the Fluids which circulate through the capillary Veſſels of the Brain, and abound with a volatile Oil, Salt, and Spirit, and are known commonly by a grateful Flavour and Odour, as Marjoram, Balm, Sage, Roſemary.

Thoſe things which affect the Noſe with a grateful Smell, and are not hot, by their Odour promote the Separation of the animal Spirits.

23. *Cordial*

Are all ſuch things as increaſe and facilitate the animal or natural Motions, the Power of moving the Muſcles, or circulating the Fluids.

What increaſeth the Strength of the Heart, is not always a Cordial; for in inflammatory Diſtempers, by increaſing the projectile Motion of the Blood, the Strength may be diminiſhed.

What increaſeth the Force of the Heart ſo as to give a due degree of projectile Motion to the Blood, is a Cordial.

What produceth a due Quantity of animal Spirits, neceſſarily facilitates the animal and natural Motions.

Such are all Aliments which put the nutricious Juices in ſuch a State of Tenuity and Heat as approacheth to the White of an Egg, while it is hatching; thoſe are commonly Meats and Drinks of eaſy Digeſtion, nouriſhing, of a Flavour grateful to moſt Palates.

Such as determine and ſettle the irregular Motions of the animal Spirits; therefore anodyne Subſtances, and what abate Spaſms and Convulſions, are Cordial.

Such as ſtimulate and excite the Spirits, as Spices and Vegetables, which abound with a volatile Salt, Oil, and Spirit.

In ſhort, whatever relaxeth the too ſtrict Veſſels, or ſtraitens the too lax; what thickens the too thin, or attenuates the too thick Fluids, is a Cordial.

24. *Carminative, or Expellers of Wind.*

Wind is elaſtick and rarify'd, pent up in ſome Veſſel of the Body, which by its Expanſion creates a Tenſion or Convulſion in that Part.

Every thing which takes off that Convulſion, is, properly ſpeaking, carminative.

Therefore what relaxeth or openeth ſo as the elaſtick Air may eſcape, as warm Water drank plentifully, Bathing, Fomentations, and all things which abate Pain, and thoſe things which abound with volatile oily Salts, are carminative.

As thoſe Spaſms are often occaſion'd by ſome acrimonious Subſtance which conſtringeth the Fibres of the affected Part; whatever is contrary to that particular Acrimony, is carminative.

25. *Anthelmintick, or contrary to Worms.*

All things which are known by Experience to kill them, as Oils of all Kinds; Honey taken upon an empty Stomach, or after ſome gentle purging Medicine.

Subſtances which by their ſmall pungent and ſharp Particles kill them without hurting the Inteſtines, as all Fiſh-Bones and Hartſhorn powder'd.

Thoſe things which purge and expel them out of the Body, of which kind there are ſeveral alimentary Subſtances.

26. *Anodyne, or Abaters of Pain of the Alimentary Kind.*

Such things as relax the Tenſion of the affected nervous Fibres, as Decoctions of emollient Subſtances; thoſe things which attenuate and remove the Obſtruction, or deſtroy the particular Acrimony which occaſions the Pain, or what deadens the Senſation of the Brain by procuring Sleep; ſome Alimentary Subſtances are endued with this Quality, as Saffron, Lettuce, Cichory, Wine, and inflammable Spirits.

This being a ſort of a compendious Alimentary Diſpenſatory, makes it unneceſſary in the following Rules to repeat conſtantly the ſame things, it being ſufficient to mention the Intention or Deſign to be purſued in the Diet.

When there are Contra-indications, that is, when different Symptoms demand oppoſite Methods one muſt adapt the Method to the moſt urgent Symptom.

When the Diſeaſe is complicated with other Diſeaſes, one muſt conſider that which is moſt dangerous. Theſe may ſerve for general Rules.

CHAP. II.

Rules of Diet in the different Conſtitutions of Human Bodies.

Lax and weak Fibres.

PAleneſs, a weak Pulſe, Palpitations of the Heart, flabby and ſlack Fleſh, Lazineſs, Laſſitude, Bloatedneſs, ſcorbutical Spots are Symptoms of weak Fibres.

Leanneſs is no Sign of weak Fibres, for though the bundle of Fibres which conſtitute the Muſcle may be ſmall, the Fibres themſelves may be ſtrong and ſpringy.

Such as have weak Fibres ought to avoid all great Evacuations, eſpecially Letting of Blood, Subſtances viſcous, and hard of Digeſtion, a ſedentary Life, and moiſt Air.

They ought to take Aliment frequently, in ſmall Quantities, nouriſhing, and of eaſy Digeſtion, ſuch as Milk, Broths and Jellies of Fleſh Meat, Panadas, *&c.* Their Drinks ought to be auſtere Wines mix'd with Water, or any Wine mix'd with chalybeat Water; and to uſe in their Aliment ſtyptick auſtere Vegetables, ſuch as are enumerated N° 1, as far as their Stomachs can bear them.

Too ſtrong and ſpringy Fibres.

A Body hard, dry, ſcraggy, hairy, warm, with firm and rigid Muſcles, a ſtrong Pulſe, Activity and Promptneſs in Animal Actions, are Signs of ſtrong, rigid, and elaſtick Fibres.

Such Conſtitutions are ſubject to inflammatory Diſtempers.

They ought to avoid the Diet proper in the contrary State.

Their Nouriſhment ought to be emollient and cooling, the Pulps, Juices, Jellies, Mucilages, and Decoctions of Vegetables mentioned N° 2.

N° 2. animal Oils, and all things which relax and increaſe Fat, avoiding all things ſeaſoned with Spice and Salt: Their Drink, Water, Barley-Water, Whey; and eſpecially to avoid fermented Spirits, which to ſuch are extremely hurtful.

Bathing in tepid Water is beneficial to ſuch Conſtitutions, and immoderate Labour or Exerciſe hurtful.

Plethorick Conſtitutions.

The Signs of a Plethorick Conſtitution, or of ſuch as abound with laudable animal Fluids, are evident.

The Cauſes of it are a good Stomach, nouriſhing Diet, a good Digeſtion, little Exerciſe, much Sleep, and Suppreſſion of uſual Evacuations, eſpecially Perſpiration; therefore the avoiding theſe, and inducing their Contraries, are the proper Cure.

A plethorick Conſtitution is ſubject to a Stoppage of the Circulation, and conſequently to Suffocation, Ruptures of the Veſſels, and ſudden Death; therefore it ought to be ſpeedily broke by proper artificial Evacuations, and reſtoring the uſual natural ones.

Long Abſtinence is not proper for plethorick Conſtitutions, for it thickens the Fluids; frequent Blood-letting, in ſmall Quantities, often increaſeth the Force of the Organs of Digeſtion, fattens, and increaſeth the Diſtemper.

They ought to avoid oily and nouriſhing Subſtances; watery Vegetables, as being leſs nouriſhing than animal Diet, are proper; and Fiſh rather than Fleſh: In a *Lent* Diet People commonly fall away.

Sanguineous Conſtitutions.

Such are known by their Complexion, or Colour of their Countenance and Skin: They are ſubject to Hæmorrhages, Inflammations, eſpecially of the Lungs, Impoſthumations, and often to ſcrophulous Diſtempers.

All things which accelerate the Motion of the Blood are hurtful to ſanguineous Conſtitutions, as violent Exerciſe and Watching.

Acid Subſtances, N° 5, eſpecially Vinegar, are uſeful; the copious Uſe of Vinegar brings Paleneſs.

The ſanguineous ought to avoid the copious Uſe of all things that abound with an acrimonious Salt and high exalted Oil, as Muſtard, Onions, Garlick, Leeks, the Herbs us'd in Seaſoning, mention'd N° 6, and in general, all Spices.

Conſtitutions ſubject to Acidity.

Sour Belchings, a craving Appetite ſometimes of unuſual things, as in the Caſe of the Green-Sickneſs, Colical Pains, dry Gripes, change of the colour of the Bile from Yellow towards Green, a ſour Smell in the Excrements and Sweat, Paleneſs of the Skin, Lowneſs of the Pulſe, and ſome ſort of Eruptions of the Skin, are the common Signs of ſuch a Conſtitution.

The chief Seat of Acidity is in the Stomach and Inteſtines, from whence it will ſometimes paſs into the Blood, and other Juices.

Such ought to abſtain from the copious uſe of acid alimentary Subſtances, mention'd N° 5, they ought not to eat much Bread, nor take great Quantities of mealy Subſtances, nor drink much of fermented Liquors eſpecially ſour and thin Wines.

Their Diet ought to be rather of animal Subſtances than vegetable: The Fleſh of thoſe Animals which live upon other Animals is moſt anti-acid, as ſeveral Birds, and Water-Fowl; tho' thoſe are offenſive to the Stomach ſometimes, by reaſon of their Oilineſs. Vegetable and animal Oils are often agreeable to ſuch Stomachs, as Almonds, Piſtachos, Cream, Butter, Marrow.

Their Diet ought to conſiſt, in general, of Subſtances mentioned N° 4.

Water or Wine not ſour or thin, is their proper Drink.

They ought to uſe much Labour or Exerciſe, for labouring People have commonly a good Digeſtion, and ſubdue the Acidity of their Aliment.

Acidity in the ſucking Infant is to be cured by an alkaline Diet in the Nurſe.

To know whether Eruptions of the Skin come from an acid or alkaline Cauſe, one muſt attend to the previous Diet and the concomitant Symptoms; (Children, by eating unripe Fruit often, have Eruptions upon their Skin) the Lentor, itching Colour, and State of ſuch Eruptions, not inflammatory, nor tending to Suppuration, point rather to an acid Cauſe, and the Succeſs of the Cure often demonſtrates the ſame, ſuch being often heal'd by animal alkaline Salts.

Conſtitutions abounding with a ſpontaneous Alkali.

This Conſtitution is more natural to Human Bodies, becauſe all animal Subſtances are alkaleſcent.

Heat, Thirſt, hot nidoroſe Belchings, Foulneſs of the Tongue and Palate, a bitter and hot Taſte in the Mouth, Sickneſs, Loathing, bilious

Vomitings, Stools with a cadaverous Smell, Pains in the Belly, with Heat, are Symptoms of an alkaline State of the Humours in the Stomach and Bowels.

Such a State diſpoſeth the Humours of the whole Body to Heat, Inflammations, and Putrefaction, hinders Nutrition, and often cauſeth Eruptions on the Skin, dark, livid, lead-colour'd and gangrenous, and what is commonly called the hot Scurvy.

Such Conſtitutions ought to avoid alkaline Subſtances, mentioned N° 4, *viz.* an animal Diet, eſpecially Fat, Spices, and all Vegetables which abound with an acrimonious Salt and high exalted Oil, and the copious uſe of Salts in general; all animal Salts are alkaline; Sea-Salt and Rock-Salt, tho' they are of a mix'd Nature, rather increaſe the Diſeaſe; Salt-Petre is the moſt cooling and proper.

They ought to uſe plentifully the acid Subſtances mentioned Nº 15, to live much upon Aliments made of Grains or mealy Subſtances, to eat much Bread, and ſeaſon much with Vinegar; thin Wines, Wine mix'd with Water, Water with Juice of Limon, and eſpecially Milk and Water, are proper Drinks.

Thoſe who feel no Incovenience in taking Acids, ought to take them plentifully.

People of ſuch Conſtitutions ought not to uſe violent Exerciſe, nor long Abſtinence, which diſpoſeth to ſuch a State, and after long Abſtinence they ought not to eat plentifully; they ought to uſe liquid rather than ſolid Aliment.

Plethorick Conſtitutions are ſubject to fall into this alkaline State of the Fluids, which is more dangerous than that which proceeds from Acidity; for the Bile (which is here redundant) is the ſtrongeſt Anti-acid, and when it is highly exalted, and acrimonious, is capable of producing all the dreadful Symptoms of malignant and peſtilential Fevers, as is evident from the Experiments that were made in the Plague of *Marſeilles*. There is nothing corrects the Acrimony of the Bile ſo much as the acid Diet above-mentioned; therefore one cannot be too early and quick in diſcerning a Tendency to ſuch a State, and obſerving if the Perſon be plethorick, hot, or dry; if the Air be hot; if bilious Fevers reign; if there be any Acrimony in the Fæces, Urine, Sweat; or a yellow Caſt in the Skin; with the Signs above-mentioned, by an early Application of proper Remedies, many dangerous and fatal Diſeaſes might be prevented.

Phlegmatick Conſtitutions.

Sickneſs of the Stomach, a Senſe of Fulneſs without eating; Crudities or Meat remaining in the Stomach undigeſted, Dejection of Appetite, Wind coming upwards, but eſpecially tough Phlegm frequently rejected by Vomiting, Inflations and Tumors of the Belly (ſometimes ſhort Breath) and Paleneſs, are Signs of a phlegmatick Conſtitution; when a Child grows pale, and his Belly ſwells, as happens to thoſe that are rickety, there is certainly tough Phlegm in the Inteſtines, which commonly ſhuts up the Mouths of the Lacteals, and hinders the Nouriſhment from paſſing: Perſons of ſuch Conſtitutions ought to avoid mealy Subſtances unfermented, unripe Fruits, and all viſcous Nouriſhment; they ought not to let Blood, except upon urgent Occaſions, nor provoke Sweat, which thickens the Humours.

Their Diet ought to be alkaleſcent, of Subſtances mentioned Nº 4, becauſe whatever brings them into an alkaline State is a proper Cure for the Diſeaſe; therefore ſoapy Subſtances, which conſiſt of a pungent Salt and volatile Oil, Spices, Salt, Garlick, Onions, Leeks, and the warm Vegetables us'd in Seaſoning, Thyme, Roſemary, Savory, Baſil, Marjoram, and in general, every thing which exalts the Bile; for bilious and phlegmatick Conſtitutions are oppoſite; and even Children ſo diſeas'd ought to uſe a warmer Diet, than what ſeems proper to their Age without it.

Phlegmatick Perſons ought to drink fermented Liquors and generous Wines, ſuch as put the Blood in a vigorous Motion. Warm Water diſſolves Phlegm, but it relaxeth too much.

Thickneſs of Blood.

Thirſt, Leanneſs, Exceſs of animal Secretions, as of Urine, Sweat, liquid Dejections, too ſtrong a Perſpiration,

ſpiration, are Signs and Effects of too great Thinneſs of Blood.

For ſuch, the Diet preſcrib'd in Debility or Weakneſs of Fibres, is uſeful; Milk boil'd with Grains, eſpecially Rice, rather ſolid than liquid Aliment, and auſtere Wines for Drink.

Oily or fat Conſtitutions.

Fat People ought to eat and ſleep little, and uſe much Exerciſe, in which the Cure chiefly conſiſts.

Whatever heats moderately, ſtimulating Subſtances abounding with a pungent acrid Salt, as Muſtard, Horſe-Radiſhes, Garlicks, Onions, Leeks, Spices, and the aromatick Plants us'd in Seaſoning, Saffron, carminative Seeds, Meats high ſeaſon'd with Salt, Pepper and Vinegar, are all proper, and diſſolve Fat; they have only one Inconvenience, that they create Thirſt, and great Quantities of Liquids increaſe the Diſeaſe, by diluting and relaxing the Solids; Salt is a great Diſſolver of Fat.

Fat People ought to avoid oily Nouriſhment; but Soaps, which conſiſt of Oil and Salt, are proper, becauſe they are reſolvent; therefore Honey, Sugar, and ripe Garden-Fruits are uſeful.

Some of the aſtringent Subſtances, mentioned Nº 1, are uſeful, becauſe their Fibres are commonly too lax.

Whatever promotes Perſpiration, and therefore Frictions of the Skin, are uſeful.

Their Drink ought to be thin Wines; Coffee and Tea, as they dilute and ſtimulate moderately, are uſeful; great Quantities of oily fermented Liquors increaſe Fat; mere Water relaxeth too much; moiſt Air is hurtful to fat People, by relaxing the Fibres, and ſtopping Perſpiration.

Melancholy or atrabilarian Conſtitutions.

A Tendency to this is known by Darkneſs or Lividity of Countenance, Dryneſs of the Skin, Leanneſs, a quick penetrating Genius, a ſlow Pulſe and Reſpiration, Obſtruction of the Belly, and too great Application to one Object.

To ſuch, all things which heat and promote too great a Perſpiration, as all Subſtances that abound with an acrimonious Salt and volatile Oil, are hurtful, which the Reader may ſee in the Firſt Chapter. Nouriſhment viſcous and hard of Digeſtion, and nothing more than ſalted and ſmok'd Fleſh or Fiſh; in general, every thing that thickens the Fluids, or reduceth them to a pitchy Condition.

Aſtringent auſtere Aliment, mention'd N° 1, and auſtere Wines, are hurtful.

Too cold and too hot Air are both hurtful, for in ſuch States of Air melancholy Perſons are always worſt.

Diluting is beneficial, eſpecially with Water impregnated with ſome penetrating Salt, Subſtances which cool, relax the Belly, and reſolve the Bile; Barley-Water, Whey, ripe Garden Fruits, emollient Pot-Herbs, eſpecially Lettuce, Cichory, Dandelion, and Honey moſt of all.

There is one Caution to be obſerv'd, That the Diet ought to be oppoſite to the particular Acrimony which occaſions the Diſeaſe; for if it proceeds from too great Acidity, in ſuch a Caſe an animal Diet, Broths made of Fleſh-Meat, and even Eggs, are proper; if the Cauſe be alkaline, the contrary Method is uſeful.

Faulty Motion of the Fluids.

The Blood and other Fluids of a Human Body, are often not only peccant in their Qualities, but Motion, which may be either too ſlow, too quick, or in ſome of the Veſſels totally obſtructed.

Thoſe who have too ſlow a Circulation, are to be conſider'd as in the Caſe of phlegmatick and fat People; and thoſe who have too quick a Circulation are to be conſider'd as in the Caſe of ſuch as are bilious, hot, and alkaline; and the reſpective Diets are proper.

In Obſtructions of the Veſſels inflammatory, the Aliment ought to be cool, ſlender, thin, diluting, avoiding the copious uſe of Subſtances of a ſaline Quality, which ſtimulate, and conſequently may increaſe the Inflammations, unleſs in ſome Caſes where there is hopes by volatile Salts to attenuate the Fluid, and remove the Obſtruction, or where the Intention is to produce a Suppuration; but it is certain that any ſtimulating Subſtance, when it does not remove the Obſtruction, increaſeth the Inflammation.

In cold Tumors, where the Intention is to diſſipate and attenuate, the Diet ought to be diluting and ſtimulating, conſiſting of ſuch Subſtances as are of a ſoapy Nature, that is, of Salt and Oil.

Wounds.

The Aliment of ſuch as have freſh Wounds ought to be mild, that is, without ſtimulating or ſaline Subſtances, of eaſy Digeſtion, of ſuch ſort as keeps the Humours from Putrefaction, and renders them oily and balſamick.

When a Suppuration is to be promoted, the Aliment ought to be more copious and warm, becauſe ſuch induceth a Putrefaction.

When a Sore is healing, the Patient is in ſome meaſure in the Caſe of an Infant that is growing, whoſe Aliment ought to be ſuch as lengthens the Fibres without Rupture, for it is by ſuch an Elongation of the Fibres that Sores heal; and indeed the Chirurgeon ought to vary the Diet of his Patient as he finds the Fibres lengthen too much, are too flaccid and produce Fungus's, or as they harden and produce Calloſities; in the firſt Caſe Wine and ſpirituous Liquors are uſeful, in the laſt hurtful.

Women in Childbed are in the Caſe of Perſons wounded.

CHAP. III.

Of Acute Diſeaſes.

Fevers, with their various Symptoms.

RIGOR, *Coldneſs*. A right Regimen during the Rigor or cold Fit in the beginning of a Fever, is of great Importance, and Miſtakes of dangerous Conſequence: A long continued Rigor is a Sign of a ſtrong Diſeaſe, and is in it ſelf an Approach towards Death; during the Rigor, the Circulation is leſs quick, and the Blood actually ſtagnates in the Extremities, and preſſing upon the Heart creates great Anxieties, and may produce Concretions about the Heart, and in other Parts of the Body; therefore a Rigor increaſeth an Inflammation. Thoſe who die of Quartan Fevers, die in the cold Fit; and indeed there is no Miſchief but what may proceed from a Rigor of long Duration.

In ſuch Rigors, all warm Cordials and ſtimulating Subſtances are improper, for the firſt acting with force upon the right Ventricle of the Heart, may drive the Blood with too much Force through the Lungs; and ſtimulating Subſtances, by conſtringing the Veſſels, often increaſe the Symptom.

In ſuch a Rigor, nothing is more proper than Water, which dilutes and relaxes at the ſame time, and will ſooner terminate the cold Fit, and throw the Patient into a Sweat, than the warmeſt Cordial; if a very ſmall quantity of Rheniſh Wine be mix'd with the Water, it will be ſtill more effectual: In this Caſe ſtrong Frictions of the Extremities relieve.

Anxieties. In Anxieties which attend Fevers, when the cold Fit is over, a warmer Regimen may be allow'd; and becauſe Anxieties often happen by Spaſms from Wind, Spices are uſeful.

In thoſe Anxieties, Soapy Subſtances which diſſolve the Blood, are indicated; ripe Fruits; ſome of the lacteſcent Plants, as Lettuce, Endive, *&c.* and eſpecially Honey, have this Quality.

Thirſt. In Thirſt attending Fevers, Liquors ſhould not be drank quite cold; for cold Liquors, by conſtringing the Glands of the Palate and Throat, do not quench Thirſt ſo well as Liquors moderately warm: In this Caſe ſubacid Liquors ſhould be drank plentifully; all Salts increaſe Thirſt, except Nitre, and dulcify'd Spirit of Nitre mix'd with Water is very proper in this Caſe; ſo are Barley-Water and Emulſions, except in great Weakneſs and Flatulencies of the Stomach, in which Caſe Water mix'd with a ſmall quantity of Rheniſh Wine is beſt of all.

Sickneſs, Vomiting. This is one of the moſt troubleſome Symptoms attending a Fever, becauſe it renders the Patient incapable of taking any thing.

This Symptom is often prevented by giving a Vomit, or cur'd by promoting the Vomiting for a while by tepid Water.

During the Symptom, acid Liquors, and even ſuch as are auſtere and aſtringent, are indicated, becauſe ſuch ſtrengthen the Fibres of the Stomach; and indeed Nature directs Patients to ſuch a Diet, for they covet ſubacid Liquors, and abhor fat and oily things.

Diluting, and ſometimes relaxing the Belly, and carrying the bilious Salts downwards, often cures this Symptom.

Attention is to be given to the Appetites of Patients, in this and many other Caſes, who have ſometimes coveted odd things which have reliev'd them, as Salt, Vinegar, *&c.*

Vomiting, from a bilious Cauſe, is cur'd by ſubacid Liquors; Vomiting, from ſome putrid Cauſe, by Salts of all Kinds; in ſuch a Caſe, Water-Gruel with Cream of Tartar, Rheniſh Wine and Water, Jelly of Currants, Marmalade of Quinces, Sorrel boil'd in Broths well skimm'd from Fat, are beneficial.

If the Vomiting comes from a phlegmatick Cauſe, Spices and bitter things will relieve. The Counterpoiſon muſt be adapted to the Cauſe; for Example, in Poiſon from Sublimated Corroſive, and Arſenick.

In the firſt, alkaline Subſtances; in the ſecond, oily Subſtances are proper; in both, diluent.

It is eaſy to judge of the Cauſe by the Subſtances which the Patient throws up.

Whether Vomit may be ſafely or properly given, muſt be judg'd by the Circumſtances; if there be any Symptoms of an Inflammation of the Stomach, a Vomit is extremely dangerous.

Wind and *Spaſms* are occaſion'd by the feveriſh Heat expanding the aerial Particles in the Fluids.

Whatever is anodyne and quiets Convulſions, and what abates the Heat, relieves this Symptom.

Weakneſs, or the Impotence of exerciſing animal Motion which attends Fevers, proceeds from too great Fulneſs in the beginning, and too great Inanition in the latter end of the Diſeaſe; for whatever ſtops or retards the Circulation in the ſmalleſt Veſſels, eſpecially thoſe of the Brain (which either of theſe Cauſes will do) produceth this Symptom. Thoſe two Cauſes demand different Methods, in the firſt emptying and diluting;

ting; in the latter, a more plentiful Nouriſhment, the uſe of Wine diluted with Water, and Spices in ſmall quantities, Jellies, Broths, the alkaleſcent Quality of which may be corrected with ſome Acid, unleſs there be Signs of Acidity, and in that Caſe the Diet ought to be contrary to the Cauſe of the Symptom; Viper-Broth is both anti-acid and nouriſhing.

In Debility, from great Loſs of Blood, Wine, and all Aliment that is eaſily aſſimulated, or turn'd into Blood, is proper; Blood is required to make Blood; a ſmall quantity of Blood brings the Patient into danger of a Dropſy.

Frictions of the extreme Parts relieve Weakneſſes, as they promote the Flux of the Juices and Spirits in the Joints and Limbs.

Fat People are moſt ſubject to this Symptom of Weakneſs in Fevers, becauſe the Fat, melted by the feveriſh Heat, obſtructs the ſmall Canals, and conſequently produceth this Symptom. This is evident by the great Loſs of Fat ſuch People ſuſtain in Fevers. In the latter end of Fevers, ſuch are weak by the Laxity of the Fibres, and the Emptineſs of the ſmaller Veſſels; ſuch therefore muſt be treated with particular Care, *viz.* after due Evacuations, diluting ſtrongly both by Drink and Clyſters, avoiding all things oily, and uſing Sugar, Honey, and ripe Fruits.

Cordials made of ſpirituous Liquors are not the beſt Remedies for this Debility, tho' they increaſe the Force of the Heart, and are neceſſary ſometimes to keep up the vital Functions, they rather coagulate the Fluid; they add Strength to the Mill, but congeal the Stream. Whatever makes the Circulation more free through the ſmall Veſſels, is a Cordial.

Heat; the Degree of which may be known by the Thermoſcope, the

Senſation of the Patient, the Intenſeneſs of the red Colour of the Urine, the Sizeneſs of the Blood, the Diſſipation of the fluid Parts, which renders it thicker; the Hardneſs, Strength, and Frequency of the Pulſe, which makes the Friction the ſtronger, to which the Heat is proportional, the bad Diſpoſition of the Humour, and the dry Temperament of the Body.

Feveriſh Heat is moderated by Blood-letting, by muſcular Reſt, by moderate Ligatures which compreſs the Veins only, and often removed from Joint to Joint, by a mechanical Reaſon, retard the Circulation; of ſuch ſort is dry Cupping, bathing the lower Parts, watery Liquors for Drink, not cold, but tepid; ſubacid, as Jelly of Currants diſſolved in tepid watery Liquors; Decoctions of mealy Subſtances acidulated, Subſtances anodyne, Subſtances which diſſolve Concretions, as Sugar, Honey, and the ſimple Oxymel, often uſed by *Hippocrates*, plentiful diluting, and reſtoring as much Water to the Blood as is diſſipated by the Heat; all demulcent and relaxing Subſtances, cooling the Air in the Room, opening the Curtains, and removing too thick Bed-clothes; all ſtimulating and ſtyptick Subſtances to be avoided, becauſe they increaſe the Force of the ſolid Parts.

Delirium. Too great Alacrity and Promptneſs in Anſwering, eſpecially in Perſons naturally of another Temper, is a Sign of an approaching Delirium: In a feveriſh Delirium there is a ſmall Inflammation of the Brain; therefore any thing which increaſeth the Circulation in the lower Parts, and diminiſheth the Preſſure on the Brain, is beneficial, as immerging the Feet in warm Water; nothing relieves the Head more than the Piles, therefore Suppoſitories of Honey, Aloes, and Rock-Salt, ought to be try'd, relaxing by emollient and watery Subſtances, both in Drink and Clyſters, eſpecially Barley-Cream and Barley-Gruel.

Coma Sleepineſs. A Coma will proceed either from a Preſſure upon the Originals of the Nerves, by too great Repletion; or from a Penury of Spirits by too great Inanition.

Old Men are ſubject to Comas by the Tenacity of the Fluids circulating in the Brain, which being reſolved by the Fever, obſtruct the ſmall Canals of the Brain: In young People it commonly proceeds from Fulneſs, and is beſt cur'd by letting Blood, and relaxing the Belly. The Sign of ſuch a Fulneſs is, a red Countenance, and Eyes inflamed; if it proceeds from a glutinous Oil, it ought to be attempted to be reſolved by Water, nitrous Salts, Soaps, and ſubacid Liquors.

People recovering from Comas, muſt take at firſt ſoft Nouriſhment, and in ſmall Quantities.

Watchfulneſs. This Symptom, which is ſometimes call'd a Coma Vigil, often precedes too great Sleepineſs, and is perhaps the moſt ill-boding Symptom of a Fever.

The Expedients in ſuch a Caſe are extreme Care to keep the Patient from Noiſe, and what makes any ſtrong Impreſſion upon his Senſes, ſome of thoſe Helps us'd in a Delirium, becauſe this is an Approach towards it; a moiſt ſoftening Diet; all Preparations of Barley, Emulſions of Poppy Seeds, and Almonds, Aliment of ſome lacteſcent Plants, eſpecially Lettuces, Decoctions of Scorzonera Roots, Almond Cream, and what is called Winter Flummery, us'd as Aliment; Tea, made of Cowſlip Flowers, relaxing gently the Belly.

Boerhaave propoſes ſome mechanical Expedients which may perhaps have a good Effect, as a ſoft Noiſe of Water diſtilling by Drops into a Baſon, and the Patient trying to reckon them.

The Air perfum'd with the Smell of ſoporiferous Plants, as Poppies, Mandrakes, Nightſhade, Bean Flowers.

Application of Cloths dipp'd in Vinegar to the Temples.

Opiates muſt never be given but after great Evacuations.

Convulſions. It is of the utmoſt Importance to know the Cauſe and the Seat of this Diſeaſe, which is often obſcure.

In Infants they commonly proceed from Acidity in the Stomach, and are cured by terreſtrial Abſorbents; in ſuch indeed Convulſions attending Fevers are not quite ſo dangerous.

Convulſions ariſing from ſome Acrimony in the Stomach, or from ſomething vellicating a Nerve in its Extremity, and not in its Original where it ariſeth from the Brain, are not very dangerous.

Convulſions which ariſe from great Evacuations, as great Hæmorrhages attending Fevers, are dangerous.

Convulſions ariſing from Inflammations of the Membranes of the Brain are commonly fatal: The Symptoms attending them are a great Heat, a hard Pulſe, and a Delirium: The Remedies, and even thoſe from Diet, are to be us'd according to the Seat of the Diſeaſe.

If from the Stomach, ſuch Aliments as are contrary to the particular Acrimony, Acid Alkaline, or Oily, reſiding there, as in the Caſe of Vomiting.

If from ſomething impacted in the Brain, warm volatile and ſpicy Subſtances will increaſe the Diſeaſe;

in that Caſe, Subſtances which relax and dilute are proper, eſpecially ſuch as open the Belly; which, *See in the Firſt Chapter*; and in general, the Regimen preſcrib'd in a Coma, or Delirium.

Violent Sweats proceed from a Laxity of the Veſſels, and too vehement a Circulation of the Blood.

Profuſe Sweats deprive the Blood of its moſt fluid Parts, thicken, and often cauſe Obſtructions; it is not good Practice to puſh Sweating too much in Fevers, except in ſuch as are peſtilential.

In profuſe Sweats, Care at leaſt ſhould be taken, by diluting, to reſtore the Liquid which the Blood loſeth, and to uſe the Methods adviſed in too great Heat, by taking away ſome of the Coverings of the Bed, and admitting of cool Air, and uſing a Diet moderately aſtringent; Wine, Spices, and ſpirituous Liquors, in this Caſe, have often a good Effect; ſpirituous Liquors thicken the Fluids; Sage is a good Remedy in the Caſe of profuſe Sweats.

A Diarrhœa Looſeneſs proves often a dangerous and fatal Symptom in Fevers, it weakens, excoriates and inflames the Bowels, occaſions Bloody-Fluxes, thickens the circulating Juices, and exhauſts the Strength of the Patient; notwithſtanding, a critical Diarrhœa is not to be ſtopt, for fear of incurring theſe Dangers.

Attention is to be given to the Cauſe, if Acidity; it is to be cur'd by Anti-acids; but, as in Fevers, the Cauſe is more frequently alkaline and bilious, acid or ſour things relieve, and it happens that oily Subſtances by blaſting the Acrimony will do good in Diarrhœas. Oily Subſtances of themſelves do not irritate or provoke Diarrhœas, they only lubricate or make the Bowels ſlippery. Diarrhœas ariſing from Quantities of Fruit are often cur'd by Emulſions.

Vomiting, by evacuating the irritating Cauſe, often cures ſuch Diarrhœas.

Anodyne Subſtances are proper, and generally ſpeaking, ſolid and dry Aliment, rather than liquid.

Inflammatory Eruptions. In all theſe of any kind whatſoever, as Small-pox, Meazles, Scarlet Fever, Purples, the Intention in Diet ought to be, to avoid ſtrong Sudorificks, which puſh out too great a quantity of the Matter upon the Skin; to uſe cooling and temperate Diluents, which keep the Matter fluid and moveable, ſo that it may be ſecern'd from the Blood; to keep warm during the Eruption; and that the Diet be cool; for which Reaſon the moderate Uſe of Acids, as Juice of Limon, is indicated.

A due Attention to the few Rules above-mention'd, in the ſeveral Symptoms, will prove very ſucceſsful in the Cure of moſt Fevers. I ſhall only add a few more according to the various Kinds of Fevers and Inflammatory Diſtempers.

An Ephemera, or a Fever of one Day, is cur'd by Abſtinence, Reſt, and Diluting; and the ſame Method will prove effectual if the Fever laſts ſeveral Days, and is not putrid, or attended with a greater Inflammation and Acrimony, and Obſtruction of the Veſſels in ſome Parts of the Body, amongſt which is what is commonly call'd, a Cauſus, or Burning Fever.

The Cauſes of ſuch a Fever are various; Errors in the Non-Naturals, Air, Meat and Drink, Reſt and Motion. Such a Fever will be rais'd by vehement Exerciſe or Labour, Heat of the Sun, by long Thirſt, by the immoderate Uſe of fermented and ſpirituous Liquors; and hot things, as Spices; and by great Laſſitude endured any way, eſpecially in hot Weather.

It

Its Symptoms are a burning Heat in the Skin, a Senſation of extreme Heat inwardly; ſometimes Coldneſs in the extreme Parts; Dryneſs of the Skin, Mouth, and Noſtrils; a Dryneſs and Roughneſs of the Tongue; laborious and ſhort breathing; great Thirſt; Loathing, Sickneſs of the Stomach, and Vomiting; Anxiety, Reſtleſneſs, Weарineſs; ſometimes a Cough and Hoarſeneſs; Watchfulneſs and Delirium, and Exacerbation every other Day.

Such a Fever is often reſolv'd by a bleeding at the Noſe, which ought not to be ſtopt unleſs it endangers Life. It is likewiſe often in the critical Day reſolv'd by Sweating, Vomiting, Looſeneſs, and Spitting of thick Phlegm. The fatal Signs are commonly bloody Urine, Difficulty of Swallowing, watery Sweats about the Head and Face, without Relief; Coldneſs of the Extremities, Trembling, too great a Looſeneſs; and ſometimes an Inflammation of the Lungs.

The Regimen, in ſuch a Fever, is keeping the Air of the Room pure and cool, untainted with Fire, Smoke, or the Breaths of many People; they ought to have no more Bed-clothes than barely protects them from Cold; their Curtains ought to be kept open ſo as to renew the Air; and their Poſture in lying, as erect as they can bear; the Sick, in this Condition, covet all theſe things, and their Contraries offend them.

Their Drink ought to be cool, mild, ſubacid, tepid, given in moderate Quantities, and often, as Water with Juice of Limon or Tamarinds.

Their Aliment ought to be light, of farinaceous Vegetables, as Water-Gruel, Preparations of Barley, with ſome Juice of Limon; Rice boil'd in Whey, and ſtrain'd. Roaſted Apples in the Progreſs of the Diſeaſe; a little toaſted Bread with Rheniſh Wine and Water, Jelly of Currants; Broths and Jellies made of animal Subſtances are rather too alkaleſcent, at leaſt they ought to be qualify'd with Juices of Limon, or ſome acid.

Sometimes ſuch alimentary Subſtances as gently ſtimulate the Belly, are uſeful, as ſome ripe Fruits, Strawberries, Currants, Mulberries.

The Symptoms increaſe by the Uſe of hot things given either as Aliment or Medicine.

Intermitting Fevers.

They are (at leaſt in this Country) very obſtinate, often return in ſpite of all Remedies, and by long Continuance they degenerate into Hepatical Fevers, and many chronical Diſtempers, as Jaundice, Dropſy, Schirrus's, and Scurvies; therefore in this Diſeaſe a right Method, both of Medicines and Diet, is of great Importance.

tance. There is a great Variety in theſe Diſeaſes, as to the Intervals of Times between the Paroxyſms; Tertians ſometimes redouble their Paroxyſms, ſo as to appear like Quotidians. I think it may be taken as a general Rule, That the greater diſtance of Time there is between the Paroxyſms, the Fever is leſs dangerous, but more obſtinate.

There is a different Regimen to be us'd during the Continuance and Abſence of the Paroxyſm; and in the Paroxyſm itſelf, during the Rigor or cold Fit, the Heat and the Sweat.

During the Rigor, the Regimen preſcrib'd in the foregoing Part of this Chapter, in the Article of Feveriſh Rigors, is proper in all Fevers, and Care is to be taken by all proper Methods to ſhorten that Period as much as poſſible, and by tepid Diluents to bring on the Sweat ſoon, but not to puſh it beyond its due Meaſure, becauſe an intermitting Fever relaxeth and weakens the Body extremely.

Between the Paroxyſms, too great Abſtinence is hurtful as much as too great Repletion; as intermitting Fevers are often of long Continuance, extreme Abſtinence is impracticable, and would reduce the Patient to a Condition not to be able to ſuſtain the Shock of the next Attack.

Between the Paroxyſms, ſuch Subſtances as temper, correct, and ſubdue the bilious Alkali, as acid Subſtances, nitrous Salts, ſmall thin Wines with Water, Chicken Broth with Juice of Limons; Wine with Bitters infuſed, are proper; Cichory and Dandelion are uſeful, becauſe the expreſs'd Juices of them cure intermitting Fevers in warm Countries; the Phyſicians of theſe Countries likewiſe uſe aſtringent Vegetables, *See* Chap. I. Nº 1.

Exerciſe, to as great a degree as the Patient can bear, is extremely beneficial between the Paroxyſms.

But the chief Remedy of all is to endeavour to prevent the cold Fit, by getting to Bed, by Frictions, and ſome ſudorifick and warm Liquor; for by putting off the cold Fit ſome Agues have been cur'd.

Letting of Blood ſeldom does good, and often a great deal of hurt in intermitting Fevers; but the Condition of the Patient is to be conſider'd in this Caſe.

Intermitting Fevers have been obſerved to free from ſome Chronical Diſtempers, as the Gout and Convulſions, but they often induce great ones themſelves.

INFLAMMATORY DISEASES.

A Phrenſy, or Inflammation of the Brain.

This Diſeaſe, of all others, requires the ſpeedieſt Applications, profuſe Hæmorrhages from the Noſe commonly reſolve it, and copious Bleeding, by opening the temporal Arteries, are the moſt effectual Remedies: But to ſtick to my Subject, which is the Diet.

Subſtances which cool, and at the ſame time relax the Belly, are highly beneficial, as Tamarinds boil'd in Water, which taken plentifully may at laſt bring a Looſeneſs which is a great Relief to the Head.

Soliciting the Blood to other Parts of the Body; therefore tepid Bathings of the lower Parts, and procuring the Piles, relaxing Fomentations apply'd to the Veins, which carry the Blood from the Head, relieve in this Diſeaſe.

eaſe. Cool Air, and Sitting up, if poſſible; for the warm Air of the Bed exagitates the Blood.

The Aliment ought to be ſlender, of farinaceous Subſtances, as Water-Gruel acidulated, or ſubacid ripe Fruits, with their Jellies; the Drink ſmall, diluting, and cooling, Barley-Water, Small-Beer, or the Decoction of Tamarinds above-mentioned. All ſuch gentle Anodynes as are to be found amongſt the Alimentary Kind, are ſafe. *See* the Articles of Delirium and Watchfulneſs in this Chapter.

Quincy.

The Tumour of the Throat, which occaſions the Difficulty of Swallowing and Breathing, attending this Diſtemper, may be of various ſorts: Sometimes it proceeds from a Seroſity obſtructing the Glands, which may be watery, ædematoſe, ſchirrous, according to the ſeveral degrees of the Viſcoſity of the Humour; ſometime inflammatory, which Inflammation will ſometimes end in a Suppuration, or Gangrene.

The Difficulties of Breathing and Swallowing, which happen without any Tumour outward or inward, after long Diſeaſes, proceed commonly from a Reſolution or paralytical Diſpoſition of the Parts, and is the immediate Forerunner of Death.

The Regimen in thoſe Quincies which proceed merely from the Obſtruction of the Glands, muſt be to uſe ſuch warm Liquors as gently relax, ſoften, and moiſten thoſe Glands, ſuch as carry off the redundant Serum by Stool, Sweat, and Urine; or by ſtimulating, open the Emunctories of theſe Glands to ſecern the Humour *.

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* *See* Chap. I.

In a mere watery Tumour, the Diet may be more warm than in the inflammatory, and the moderate uſe of Wine often relieves the Patient.

The Difficulty of Swallowing and Breathing, occaſion'd by Schirroſities of the Glands, is not to be cur'd any otherwiſe than by Extirpation.

Thoſe who are ſubject to Inflammations of the Throat, ought to live temperately to prevent a Plethora; or to break ſuch a Fulneſs ſpeedily by proper Evacuations, to beware of cold Air, too aſtringent or ſtimulating Aliment or Medicine, and violent Exerciſe, which, by increaſing the projectile Motion of the Blood, heat; but eſpecially the ſwallowing of cold Liquors when they are hot.

In theſe Inflammations a ſlight Diarrhœa relieves; therefore Aliments which promote it are uſeful, as Tamarinds infus'd in Whey. Decoctions and Emulſions of farinaceous

Vegetables moderately acidulated, and ſuch as abound with a cooling nitrous Salt, are proper; it is commonly thought that Punpenella, Saxifraga, or Burnet, is a Specifick in this Caſe: Every body knows the Benefit of Mulberries, taken all manner of ways. All Acids, as Sorrel, Juice of Limon, *&c.* abate Inflammations.

The Mouth and Throat muſt be kept moiſt, and the Noſe clear, that the Air may have a free Paſſage through it; for Air drawn by the Mouth, dries.

When the Deglutition is totally aboliſh'd, the Patient may be nouriſh'd by Clyſters, which I have known to have been done for a whole Week, after which the Tumour ſuppurated.

When the Inflammation ends in a Gangrene, the Caſe generally proves mortal, except it be only in the *Tonſils*, *Uvula*, and Palate, and go no further, which Parts may be ſeparated, and the Patient live.

Inflammation of the Lungs.

Such may happen either in the bronchial or pulmonary Veſſels, and may ſoon be communicated from one to the other; when the Inflammation affects both the Lobes and the whole Body of the Lungs, the Caſe is deſperate, becauſe the Circulation muſt be ſtopt, and no Blood can flow back into the Heart. Beſides the general Cauſes of Inflammations, thoſe which affect the Lungs particularly, are a bad Conformation of the Lungs and Thorax commonly attended with an Aſthma, Air too hot, cold and moiſt, abounding perhaps with cauſtick, aſtringent, and coagulating Particles; the Lungs, properly ſpeaking, are an outward Part of the Body, expos'd to the Air, which, by its immediate Contact may eaſily coagulate the Blood which flows along the Surfaces of the Air-Bladders, and I believe the Qualities of the Air are the general Cauſe of the Inflammation of the Lungs which happen in the Winter time.

As the Lungs are the chief Organ of Sanguification, crude and viſcous Chyle, viſcous Aliment, Spices, but eſpecially ſpirituous Liquors, may occaſion this Inflammation; too great an Exerciſe of the Lungs, ſo as to occaſion a ſhort and laborious Breathing, or keeping them too long upon the Stretch by Vociferation, or loud Singing, may produce the ſame Effect: There are coagulating Poiſons which affect the Lungs very ſuddenly; extreme violent Paſſions, by affecting the Motion of the Heart, may do the ſame; it is a common thing to ſee People in ſudden Tranſports of Anger breathe ſhort. Inflammations are ſometimes tranſlated from other Parts to the Lungs; a Pleuriſy eaſily paſſeth into Peripneumony. The avoiding thoſe Cauſes is the beſt Rule of Diet to prevent the Diſeaſe; beſides, ſpeedy and plentiful letting of Blood before it has quite taken place.

This Diſeaſe is often cur'd by the critical Reſolution, Concoction, and Evacuation of the morbifick Matter, which is either attenuated ſo as to be return'd into the Channels, and to go on in the common Thread of Circulation, or expectorated by Coughing, which may be eaſily known by the Abatement of Symptoms, *viz.* the Fever, Difficulty of Breathing, Thirſt, Anxiety, Reſtleſneſs, and the Patient's falling into gentle breathing Sweats. One of the beſt Reſolvents is the Blood of the wild Goat.

Copious Bleeding is the moſt effectual Remedy in the beginning of the Diſeaſe; but when the Expectoration goes on ſucceſsfully, not ſo proper, becauſe it ſometimes ſuppreſſeth it, and in that Caſe Sudorificks thicken the Matter that is expectorated. The Motions of Nature ought to be followed. This by the way.

From the Symptoms in this Stage of the Diſeaſe, and the uſe of the Lungs, it is evident the Aliment ought to be more ſlender and thin than in any other inflammatory Diſeaſe whatſoever, common Whey being ſufficient to preſerve the Strength of the Patient; watery Liquors, and even the Steam of warm Water taken in by the Breath, attenuates the impacted Matter. Relaxing Aliment, of which Barley and all its Preparations are the beſt.

In this State, Diureticks, which have not much Acrimony in them, are proper, for Fluxes of Urine relieve the Lungs; for this Intention, an Infuſion of Fenel Roots in warm Water, with Milk, is good, both as Nouriſhment and Drink.

If Nature relieves by a Diarrhœa, without ſinking the Strength of the Patient, it is not to be ſtopt, but promoted gently by emollient Clyſters.

Decoction of Cichory, Lettuce, as being anodyne and reſolvent, are proper.

If the Patient is not reliev'd nor dies in eight Days, the Inflammation ends in a Suppuration and an Abſceſs in the Lungs, and ſometimes in ſome other Part of the Body; the Symptoms of which are, an obſtinate dry Cough, increas'd by Motion and taking of Food; the eaſieſt Poſture in Lying being upon the affected Side; a continual Lent-Fever, with Rigors invading with uncertain Periods; Exacerbations after Motion and Repaſt, Thirſt, Night-Sweats, a frothy Urine, Paleneſs, Leanneſs, Weakneſs.

In ſuch a Caſe one muſt forbear letting of Blood. The Diet muſt be mild, ſoft, incraſſating, and more plentiful; tepid Vapours admitted into the Lungs, of Decoctions of proper Ingredients; and when by the Symptoms and Time the Impoſthume may be judg'd to be ripe, the Vapour of Vinegar it ſelf, and any thing which creates a Cough, as Oxymel, or Vinegar and Honey, Exerciſe and Concuſſion are proper, the ſooner it is broke, the leſs Danger to the Lungs.

Tho' ſuch a State is extremely dangerous it is not quite deſperate; the Aliment ought to be Milk; the Drink, Milk, and Barley-Water, and ſuch alimentary Subſtances as are expectorating and cleanſing, with gentle Anodynes, that the Patient may have ſome Reſt. *See* Chap. I.

The principal Intention in every State of Inflammation of the Lungs is to promote Expectoration, and to reſtore it when it is loſt, If the Inflammation ends in a Gangrene, the Caſe is deſperate; if in a Schirrus, incurable.

There is a ſpurious ſort of a Peripneumony, not inflammatory; when the Veſſels are obſtructed with a viſcous Pituite that mixeth with the Blood, and invades in cold Weather, it is dangerous, and often ſuffocates; it is incident to weak and old People. In this, ſome of the Methods uſed in the Inflammatory are proper, but not ſo copious Bleeding, Clyſters frequently injected; Aliment more generous, Broths, and Jellies with Juice of Limon, Hydromel, or Hony and Water, for Drink, ſoft Oils, and Aliments which abound with a ſoft, not volatile Oil, are beneficial.

A Peripneumony is the laſt fatal Symptom of every Diſeaſe, for no Body dies without a Stagnation of the Blood in the Lungs; as long as it circulates through the Lungs, it will circulate through the reſt of the Body. The total Extinction of Breath is caus'd by the Stagnation of Blood in the Lungs.

Pleuriſy.

There is none of the Membranes which inveſt the Inſide of the Breaſt, but may be the Seat of this Diſeaſe, the Mediaſtine as well as the Pleura.

The Cauſes of this Diſeaſe, beſides thoſe common to all Inflammations, are often a particular Diſpoſition to inflammatory Diſtempers, a Straitneſs of the Arteries of the Pleura, a Calloſity of that Membrane, an Adheſion of the Lungs, the ſudden Admiſſion of cold Air by too thin clothing, too hot a Regimen, and eſpecially the copious uſe of ſpirituous Liquors, cold Liquors drank when the Body is very hot, a Tranſlation of ſome inflammatory Matter from ſome other Part, but moſt of all cold Air from a Northerly or North-eaſterly Wind; from which Cauſes proper Cautions may be taken in the Regimen by way of Prevention.

This Diſeaſe is ſometimes dry, without any Spitting, and ſometimes attended with Expectoration from the Lungs, and that is taken off by a Coction and Reſolution of the feveriſh Matter, or terminates in Suppurations, or a Gangrene.

The Regimen ought to be much the ſame as in a Peripneumony, a cool, relaxing, ſlender, diluting Diet, and avoiding all things which increaſe Heat, even to hot Air.

The Symptoms of Suppuration are the ſame as in Inflammations of the Lungs; when the Matter is made, the Side muſt be opened to let it out.

When the Diſeaſe is obſtinate againſt all Remedies, a ſudden Abatement of the Pain, a quick weak Pulſe, ſometimes intermitting, ſhort Breath and cold Sweats are Symptoms of a Gangrene, and approaching Death.

Paraphrenitis, or Inflammation of the Diaphragm.

The Symptoms of this Diſeaſe (which is often miſtaken) are a violent Fever, a moſt exquiſite Pain increas'd upon Inſpiration; by which it is diſtinguiſh'd from a Pleuriſy, in which the greateſt Pain is in Expiration.

This Pain is increas'd by Sickneſs, Vomiting, Repletion of the Stomach, or any Compreſſion of the Muſcles of the Abdomen, by rendering the Fæces or Union. The Breathing is extremely quick, ſuffocating, and ſeems to be perform'd only by the Motion of the Breaſt: It is likewiſe attended with a Delirium, Fury, and an involuntary Laughter, the Convulſion emulating this Motion.

This Diſeaſe terminates as Pleuriſies and Peripneumonies, but is generally fatal if it ſuppurates the Pus, is evacuated into the lower Belly, where it produceth Putrefaction, and a moſt miſerable and painful Death.

The Regimen, if any can be ſucceſsful, ought to be the ſame as in Pleuriſies.

Inflammation of the Liver.

The hepatical Artery, and the Vena Porta, carry the Blood into the Liver; the firſt being very ſmall, and the Motion of the Blood in the laſt being ſlow, the Reaſons are that Inflammations in the Liver are not ſo frequent as in ſome other Parts of the Body; but when they obtain, extremely dangerous, unleſs they take up but a ſmall Part of the Liver, and ſuch happen more frequently than is commonly imagined.

Some of the beſt Cautions in Diet may be taken from the Cauſes and Symptoms of this Diſeaſe.

Which, beſides the general Cauſes of Inflammations, are extreme Fatneſs. Fat diſſolv'd by Heat and Inflammations obſtructs the Veſſels of the Liver very ſuddenly. Cattle fatted by good Paſturage, after violent Motion, ſometimes die ſuddenly; in ſuch the Liver is found to be inflamed and corrupted. An atrabilarian aduſt Temper of the Blood and Gall, an acrimonious or purulent Matter, ſtagnating in ſome other Organ, is more eaſily depoſited upon the Liver than any other Part, eſpecially if attended with the uſe of hot and ſpicy Aliments, ſpirituous

Liquors, great Heat, and a Fever; Eroſions, by the Acrimony of the Gall, or Obſtructions by Viſcoſity; any Calloſity, Schirrus, or Stone in the Liver; Thirſt, long endur'd, being ſuddenly chill'd by cold Air, cold Water, or drinking cold Liquors after great Heat; Vomits given injudiciouſly, when the Liver is already unſound, which if they do not remove the Obſtruction, exagitate the Liver too much; inveterate hypochondriacal Diſtempers. All theſe Cauſes may produce Inflammations of the Liver.

In ſuch a Caſe, the Liver being ſwell'd compreſſeth the Stomach, Diaphragm, and the neighbouring Viſcera of the lower Belly, ſtops the Circulation of the Juices, the Generation and Excretion of the Gall, and all Digeſtion; produceth an Infinity of bad Symptoms, the Jaundice, with all the Diſeaſes depending upon it; for the Liver receives the refluent Blood almoſt from all the Parts of the Abdomen, and is the chief Inſtrument of all the Digeſtions which are made there. A Fever, an Inflammation and pungent Pain on the Region of the Liver and Diaphragm, a Tenſion of the Hypochondres, Yellowneſs of the Skin and Eyes, and a Saffron-colour'd Urine, are Signs of an inflammatory Diſpoſition of the Liver.

This Diſeaſe ends as other Inflammations, being cur'd either by Reſolution, Concoction, and Excretion of the morbid Matter, or terminates in an Abſceſs, Schirrus, or Gangrene.

During the firſt State, a warm Regimen and Saffron, which is reckon'd a Specifick, is improper.

Cooling reſolving Liquors taken inwardly, as Whey, with Sorrel boil'd in it; outward Fomentations, and frequent Injection of Clyſters, Bathing and Frictions, relax, and render the Matter fluid; Hony, with a little Rheniſh Wine, or Vinegar; the Juices and Jellies of ſome ripe Garden Fruits; and thoſe of ſome lacteſcent papeſcent Plants, as Endive, Dandelion, Lettuce, are reſolvent.

Violent Purging hurts, gently relaxing the Belly relieves, Diluents with nitrous Salts are beneficial, or Tamarinds boil'd in warm Water or Whey; bloody Stools, not in an extreme degree, or ſtreak'd with Blood, ought not to be ſtop'd, becauſe they help to reſolve the Diſtemper, and Hæmorrhages by the Noſe often do the ſame.

The feveriſh Matter is often carried off by Urine, and therefore Diureticks not highly ſtimulating, are proper.

Sweating ought not to be promoted by warm Cordials, but encourag'd by warm diluting Liquors.

It is a deplorable Caſe when the Inflammation terminates in a Suppuration, unleſs the Abſceſs points outwardly,

wardly, ſo as it may be opened; for if the Pus be evacuated into the Abdomen, it produceth diſmal Symptoms, Putrefaction, or an incurable hepatical Dyſentery, or Bloody-Flux.

The Pus, from an Ulcer of the Liver, growing thin and ichoroſe corrodes the Veſſels (for the Liver of all the Viſcera, is the moſt friable, and eaſily crumbled or diſſolv'd) it is often carried into the Blood, and rejected by Vomiting, with a cadaverous Smell, attended with great Thirſt; if it is carried downward, it occaſions a purulent colliquative Diarrhœa; acid Subſtances relieve moſt in this Caſe.

This Diſeaſe may happen to produce a Cancer, or Schirrus; one cannot ſay that the laſt is abſolutely incurable, becauſe it has been known by Experience that Graſs and freſh Paſture has cur'd it in Cattle; and perhaps the expreſs'd Juices of Graſs,

and

and ſome opening Plants, may do the ſame thing in Mankind, as of the lacteſcent Plants above-mention'd.

The Diet preſcrib'd here is neceſſary in a Jaundice, and all Diſeaſes of the Liver; and Abſtinence from ſuch Subſtances as induce Putrefaction, eſpecially ſalted Fiſh and Fleſh, and above all, ſtrong Liquors.

Inflammation of the Stomach.

The Symptoms of this Diſeaſe are a vehement, burning, fix'd, pungent Pain in the Stomach, attended with a Fever; a great Exacerbation of this Pain the Moment after ſwallowing any thing, ſucceeded with Vomiting; a painful Hickup, and great Anxiety. The Cauſes of theſe Symptoms are thoſe common to all Inflammations, a natural Weakneſs, and perhaps Eroſion of the Coats of the Stomach, and acrid Subſtances taken as Aliment and Medicines.

If this Diſeaſe is not ſpeedily cur'd, it proves fatal.

It terminates in a Cure by a Reſolution of the morbifick Matter, a Suppuration, Schirrus, Cancer, but moſt commonly in a Gangrene.

Of all Diſeaſes this demands moſt a total Abſtinence from every thing that has Acrimony in it, even the nitrous cooling Salts, which are beneficial in other Inflammations, irritate too much; Vomits, all Cordials of volatile or ſpicy Subſtances; ſpirituous Liquors are no better than Poiſon, and Milk generally curdles; Aliments muſt be given frequently, and by Spoonfuls at a time, for any Diſtenſion increaſeth the Inflammation; a thin Gruel of Barley, Oatmeal, Whey, with very little Sugar, or Honey, or Chicken-Broth, are proper Aliments; Whey, emollient Decoctions, Barley-Water, Emulſions, are proper Drinks; and it has been found by Experience, that chalybeat

Waters have been agreeable to the Stomach even in this inflammatory State. If there happens an Impoſthume, Honey, and even Honey of Roſes, taken inwardly, is a good Cleanſer, and Decoctions of Comfrey Roots, healing; ſpeedy and plentiful Bleeding, Fomentations, and Clyſters, have the ſame good Effect as in other inflammatory Diſtempers.

The ſame Regimen is neceſſary in a Schirrus, or Cancer of the Stomach; though nothing will be quite effectual.

The ſame Regimen is to be obſerved in the Inflammation of the Spleen, Caul, Pancreas.

Inflammation of the Guts.

The Inteſtines or Guts, moſt frequently the ſmall ones, may be inflam'd by any acrid or poiſonous Subſtance taken inwardly; from any purulent Matter tranſlated upon them from ſome other Part of the Body; from Bile, extremely acrimonious, by a violent Tenſion; from a Convulſion filling them with Wind.

The Symptoms are a total Stoppage of the Paſſage; a vehement fix'd burning Pain, irritated by things taken inwardly, when any thing toucheth the affected Part, it excites Vomiting, ſharp griping Pains, with Wind in other Parts of the Bowels; the Conſequences of ſuch an Inflammation are an Ileus, what is commonly called the Twiſting of the Guts, but is really either a Circumvolution or Inſertion of one part of the Gut within the other. All theſe Symptoms are attended with a Fever.

It is of the utmoſt Importance to know what the Cauſes of Colicks are; for as they are various, the Remedies in one Caſe are quite oppoſite and deſtructive in the other; for the ſpicy warm carminative things which are given in a Colick, from a phlegmatick or cold Cauſe, are Poiſon in an inflammatory one; they may be diſtinguiſh'd by the Fever, high Pulſe, Thirſt, and flame-colour'd Urine attending the Inflammation; as to the Heat, tho' it is great likewiſe by the Violence of the Pain, the Extremities grow cold; beſides, there is a ſudden Proſtration of the Strength or Weakneſs attending this Colick, more than any other.

This Diſeaſe admits of a ſpeedy Remedy, or none, for it ends in an Ileus, and Mortification of the Bowels very ſoon.

Beſides a copious Bleeding, there is hardly any other Method but fomenting and relaxing the Bowels by emollient tepid Liquids, both taken by the Mouth and by Clyſters, injected hourly; yet it has been known by Experience, that Acids have relieved in very deſperate Caſes, as

Juice of Limons taken by the Mouth, and Vinegar and warm Water given in Clyſters, have ſav'd the Patient, becauſe of the inceſſant Vomiting; Opiates to quiet the Convulſions are ſometimes neceſſary.

Warm Fomentations even of warm Animals to the Belly, are extremely beneficial.

If the Inflammation happens to be in the lower Guts, it is not ſo dangerous; and even when it ſuppurates, it admits of a Cure, then it can be reach'd by proper Medicines in the Form of Clyſters; in the latter end of ſuch a Caſe Chalybeat Waters are beneficial.

If the Patient ſurvives three Days, the Acuteneſs of the Pain abates, and a Chillineſs or Gruing affects the Body, it betokens a Suppuration, and in a few Days the Matter flows either into the Cavity of the Abdomen, producing all the Symptoms which happen in the Impoſthumation of the Liver, or into the Cavity of the Inteſtines, and cauſing a purulent Bloody-Flux, and often a Conſumption, *Sinus's*, *Fiſtulas*.

Whey and Chalybeat Waters are often beneficial in ſuch a Caſe, as Drinks.

The Aliment ought to be of ſuch things as generate little or no Excrements, as Broths of Fleſh-Meat, with Scorzonera, Parſley, or Fennel boil'd in them; Goats Whey is likewiſe excellent; fat and oily Subſtances generally hurt.

The Continuance of the Fever, clammy Sweats, Paleneſs, an ichoroſe Diarrhœa, fœtid, black, or like the Waſhings of Fleſh, a ſmall intermitting Pulſe, and at laſt a total Ceſſation of Pain, are Signs of a Gangrene and approaching Death.

If none of the forementions'd things happen, if the Fever abates, and the Patient complains of a Weight, dull Pain, Stoppage of the Excrements, a Schirrus is forming, which increaſeth daily, and may terminate in a Cancer, which Purging, and indeed all Medicines irritate; the Patient in ſuch a Caſe may protract a miſerable Life with an exact thin Diet of Whey, Broths, and ſuch things as produce no Fœces, or by alimentary Clyſters.

A Thruſh.

By this Name are call'd ſmall, round, ſuperficial, Ulcerations, which appear firſt in the Mouth, but as they proceed from the Obſtruction of the Emiſſaries of the Saliva, by the Lentor and Viſcoſity of the Humour, they may affect every Part of the alimentary Duct, except the thick Guts; they often ſucceed Fevers, eſpecially thoſe that inflame the Inteſtines, or are attended with a Looſeneſs; and they are juſt the ſame in the inward Parts as Scabs in the Skin, and fall off from the Inſide of the

Bowels like a Cruſt: The nearer they approach to a white Colour, the leſs dangerous.

The viſcous Matter is to be puſh'd out, therefore Bleeding in the beginning is not proper, nor Sudorificks, becauſe they thicken; but Sweating is beneficial, when the Matter is quite puſh'd out; tepid, diluent and ſmall Liquors are good in the firſt State, and Bathing, if the Patient can bear it, with Gargariſms, Clyſters; afterwards the Food ought to be nouriſhing, detergent, Panadas with Bread and Water, Bread and Milk, Honey mix'd with the Aliment, when they fall, Aliment demulcent, ſoft, anodyne, and the moderate uſe of Rheniſh Wine; when they are ſeparated, lenitive, purging Subſtances.

Inflammations of the Kidneys.

The Kidneys are ſubject to Inflammations as much as other Parts of the Body.

A pungent Pain in the Region of the Kidneys, a Stupor, or dull Pain in the Thigh, Colick, Wind, Vomiting, a Fever, Urine ſometimes totally ſuppreſs'd, in ſmall Quantity, high colour'd; and which is worſe, ſometimes quite pale, without any Sediment, are Symptoms of an Inflammation of the Kidneys; as to the Senſation of outward Heat, the Extremity of Pain often creates a Coldneſs in the Extremities, but ſuch a Senſation is very conſiſtent with an inflammatory Diſtemper.

Whatever obſtructs the Blood in the Extremities of the Arteries of the Kidneys, will produce this Diſeaſe; a Wound, Abſceſs, Bruiſe, Swelling, Lying much on the Back, too violent

lent Motion, eſpecially walking in hot Weather; whatever obſtructs the Paſſage of the Urine, as a viſcous Matter, Gravel or Stone; every thing which drives the Blood into the Urinary Canals, Heat, hard Riding, too great Fulneſs of Blood, but eſpecially ſharp and forcing Diureticks: Laſtly, Spaſms and involuntary Contractions of the Veſſels of the Kidneys.

Coffee-colour'd Urine is not a dangerous Symptom; it proceeds indeed from a Mixture of a ſmall Quantity of Blood with the Urine, but often prognoſticates a Reſolution of the obſtructing Matter, and the Expulſion of Gravel or a Stone after great Pain; pale Urine is a Symptom of a more laſting and dangerous Diſeaſe.

After plentiful Bleeding, and a careful avoiding of all ſtimulating Diureticks, which in this State of the Diſeaſe will increaſe it, the Expulſion of the obſtructing Cauſe muſt be promoted by emollient and ſoft Liquors drank plentifully, by Clyſters of the ſame frequently injected, by Bathing and outward Fomentations, by opiate and anodyne Subſtances, which ſtupify and relax the Fibres; thoſe Liquors muſt be ſwallow'd down notwithſtanding the continual Vomiting; for Vomiting is the Inſtrument of Nature to promote the Expulſion of the Stone, Gravel, or other obſtructing Cauſe.

Whey, and in a great feveriſh Heat, Butter-Milk, Emulſions of Barley and Poppy Seeds, Honey in Whey and Water, are proper Liquors for this Intention.

When the Gravel, Stone, or other obſtructing Cauſe is ſeparated from the Kidney, ſoft expreſs'd Oils, and oily Subſtances relax the Paſſages; if the Pain proceeds only from Gravel, or a Stone, oily Subſtances may be join'd ſafely with ſtimulating Subſtances, as with Juice of Limon, Juniper-Water, and ſome diuretick Syrup; this by the way, for it is out of my preſent Subject.

Violent Motion, as jolting in a Coach, may be us'd in this Caſe.

The Pain protracted beyond ſeven Days, a Pulſation, Chillneſs, often and irregularly returning, a Heavineſs and Stupor in the Part, are Signs of making of Matter, which when made will appear in the Urine.

In which Caſe ſoft and balſamick Subſtances are beneficial, for if the Matter ſtays long, the Caſe is incurable.

It happens ſometimes to end in a Fiſtula, with which the Patient may live many Years in no great Uneaſineſs. Butter-Milk, not very ſour, has been reckon'd a great Secret in Ulcers of the Kidneys, and Chalybeat Waters have been beneficial to ſome; Spruce Beer is a good Balſamick in ſuch a Caſe: I ſhould adviſe ſoft Malt Liquors rather than Wine.

Inflammations of the Kidneys ſometimes end in a Schirrus, or great Stone in the Kidneys.

A ſudden Remiſſion of the Pain, with cold Sweats, weak and intermitting Pulſe, Hickup; no Urine, or in ſmall Quantity, black and fœtid, are Signs of a Mortification and approaching Death.

The Regimen of ſuch as are ſubject to nephritick Symptoms may be in ſome meaſure taken from what is above-mentioned.

Such ought to be extremely careful of the choice of their Liquors; ſharp Wines which abound with Tartar, are hurtful; Malt Liquors not hard, nor ſtale, are certainly better to make uſe of; ſome of the ſofteſt Diureticks mentioned *Chap.* I. Nº 15. to avoid acrimonious Subſtances in their Aliment, uſe moderate Exerciſe, and not to lie hot, ſoft, nor much upon the Back.

Apoplexy.

This Diſeaſe is a ſudden Abolition of all the Senſes, external and internal, and of all voluntary Motion, by the Stoppage of the Flux or Reflux of the Animal Spirits through the Nerves deſtin'd for thoſe Motions, commonly attended with a ſtrong Pulſe, laborious Breathing, a deep Sleep with Snorting.

There is no difference between a Perſon aſleep, and in an Apoplexy, but that the one can be awak'd, and the other cannot.

The Cauſes of this Diſeaſe are a particular Confirmation of the Body, as a ſhort Neck; for there be ſome who have fewer Vertebræ in their Necks than others; long-necked People are ſubject to Conſumptions, and ſhort-neck'd to Apoplexies, tho' this Rule is not generally true; a groſs, plethorick, fat, phlegmatick Conſtitution,

tion; whatever hinders the Motion of the Blood through the Arteries of the Brain, as polypoſe Concretions, eſpecially about the Heart, attended commonly with an unequal Pulſe, a Vertigo, and ſometimes a momentary Loſs of the Eye-ſight; an inflammatory and coreaceous Thickneſs of the Blood, preceded by a Fever, attended with the Head-ach, Redneſs of the Face and Eyes; Old Age, attended with a glutinous, cold, catarrhous, leucophlegmatick Conſtitution; in ſuch, the Forerunners of an Apoplexy are Dulneſs, Inactivity, Drowſineſs, Sleepineſs, Slowneſs of Speech, and giving Anſwers, Vertigoes, Tremblings, Oppreſſions in Sleep, Night-Mares; Weakneſs, Wateryneſs, and Turgidity of the Eyes; pituitous Vomiting, laborious Breathing upon the ſmalleſt Motion; whatover compreſſeth the Veſſels of the Brain ſo as to ſtop the Flux of the animal Spirits and Blood; a great

Fulneſs of Blood with its Velocity, increas'd by Heat, violent Motion, a high Diet, ſpirituous Liquors, Tumours of any kind; within the Skull a partial and imperfect Circulation of the Blood towards the lower Parts. The Effuſion and Preſſure of any Seroſity or Blood upon the Ventricles of the Brain (which is the moſt common and immediate Cauſe of Apoplexies) violent Paſſions and Affections of the Mind. The immediate Forerunners of an Apoplexy are commonly a Vertigo, Staggering, Loſs of Memory, Stupor, Sleepineſs, a Noiſe in the Ears, and a more deep and laborious Breathing; thoſe laſt Symptoms commonly precede an Apoplexy, but they are likewiſe common to it with other nervous and hyſterical Diſtempers.

Attention to the foremention'd Symptoms affords the beſt Cautions and Rules of Diet by way of Prevention;

vention; for when it has taken place *Hippocrates*'s Prognoſtick is generally true, That it is very hard to reſolve a ſmall Apoplexy, and quite impoſſible to reſolve a great one; the gentleſt Kind of this Diſeaſe is often taken off by Sweating.

The Applications in the Fit are of the Medicinal Kind, it being too acute a Diſeaſe to admit of any Helps from Diet, but that may be of great uſe for Prevention; a thin, ſlender, cool, regular Diet, oppoſite to the particular Symptoms above-mention'd; frequent and copious Bleeding; keeping the Belly always open; ſtimulating Subſtances, which have been thought beneficial, in this Caſe very often hurt, by forcing the Blood too much up to the Head; Vomiting may prove extremely pernicious, but the Regimen is to be varied according to the Cauſe of the Diſeaſe, which may be collected from the Conſtitution of the Patient in theſe

Apoplexies, which depend upon a ſanguineous Cauſe: The Regimen preſcrib'd in ſanguineous Conſtitutions is proper; fat and phlegmatick People, who are very ſubject to this Diſeaſe, ought to attend to the Rules preſcribed in their Caſe; and as there are Apoplexies from inveterate Gouts, the Regimen of ſuch muſt be different from both, the Intention being to tranſlate the morbifick Matter upon the Extremities of the Body.

Thoſe who have a Diſpoſition to this Diſeaſe ought never to go to Bed with a full Stomach, nor to lie with their Head low.

An Apoplexy is reſolv'd by a Fever, and when not fatal terminates in a Palſy.

There is a Diſeaſe of the ſame Kind, but not ſo frequent, call'd a Catalepſis, wherein the Patient is ſuddenly ſeiz'd without Senſe or Motion, and remains in the ſame Poſture in which the Diſeaſe ſeizeth him, the Muſcles remaining in the ſame Tenſion: Violent Fevers in ſtrong atrabilarious dry Conſtitutions has produc'd this Diſtemper; the Diet after the Fit is off ought to be moiſtening and relaxing. A Lethargy is a lighter ſort of Apoplexy, and demands the ſame Cure and Diet as an Apoplexy from a phlegmatic Caſe, ſuch being the Conſtitution of the Lethargick.

CHAP. IV.

Rules of Diet in CHRONICAL DISEASES.

Palſy.

A PALSY is an Immobility of a Muſcle from Relaxation, inſuperable by the Will or any Endeavour of the Patient; ſometimes the

Senſation or Feeling is either totally aboliſh'd, or dull, with a Senſe of Tingling: A Palſy is oppoſite to a Convulſion in the firſt; there is an Ineptitude to Motion from the too great Laxity in the Second; an Ineptitude to Motion from too great Tenſion, and a Relaxation of a Muſcle, muſt produce a Spaſm in its Antagoniſt, becauſe the Æquilibrium is deſtroy'd. The beſt Rules of Diet in this Diſeaſe are taken from the Knowledge of its Cauſes. Whatever ſtops either the Flux of the Spirits, or the Flux of the Blood to any Part, induceth a Palſy, for both are neceſſary for Senſe and Motion; ſuch are all the Cauſes of an Apoplexy, an Epilepſy, extreme and laſting Pains, the Suppreſſion of uſual Evacuations either natural ot morbid, Tranſlations of morbific Matter in acute Diſtempers; whatever diſtends, diſtorts, compreſſes, or contracts the Nerves; ſtrong and ſtrait Ligatures, Luxations, Fractures, any Inflammation in the Integument, or membranaceous Sheath of a Nerve, eſpecially in the Ganglia, where they are tied together; Serous Defluxions, Exceſs in aſtringent Aliment, eſpecially unripe Fruits; drinking too much warm Water, which is weakning and relaxing; Exceſs in Coffee, or Tea; extreme Heat; extreme Cold; poiſonous Vapours of Arſenick or Mercury.

A Palſy is more or leſs dangerous according to the Cauſe, the Extent, and Seat of the Diſeaſe; when the Original of the Diſeaſe is in the Brain, it is moſt dangerous; when it ſeizeth the Heart, or Organs of Breathing, fatal; becauſe Life cannot be continued a Moment without the Uſe of thoſe Parts.

The Regimen in this Diſeaſe ought to be warm, attenuating, conſiſting of ſpicy and cephalick Vegetables, ſuch as create a feveriſh Heat, becauſe ſuch is neceſſary to diſpel the Viſcoſity. Of Vegetables, ſoapy; of ſuch as conſiſt of an acrid, volatile Salt and Oil, Muſtard, Horſe-Radiſh, *&c.* ſtimulating by Vomits, Sneezing, relaxing the Belly, purging and diluting ſtrongly at the ſame time, promoting Sweat by ſuch Motions as can be us'd, or other Means, by ſtrong Frictions, *&c.*

Bleeding is to be us'd or omitted according to the Symptoms which affect the Brain; it relieves in any inflammatory Diſpoſition of the Coat of the Nerve.

Epilepſy Convulſions.

The Cauſes of which are ſometimes an hereditary or family Diſpoſition from Parents; a ſudden Fright of the Mother when with Child of the Patient; an Affection of the Brain by a Contuſion; Abſceſs, acrimonious Serum, Splinter of a Bone or ſharp Inſtrument; Inflammation, Corruption, Eroſion of the Meninges or Membranes of the Brain; Fulneſs, Heat, Drunkenneſs, intenſe Study, ſtrong Paſſions, eſpecially ſudden Terror; all violent Affections and Irritations of the Nerves in any Part of the Body; eſpecially by ſomething acrimonious in the Stomach or Bowels, by Worms, by Teething, and Acidity in the Stomach in Infants; by ſome Contagion or purulent Matter after acute Diſeaſes; Suppreſſion of uſual Evacuations, the Menſes, Hæmorroids; hyſterical Affections contracted by Accidents in Lying-in; and often by too great Inanition; the ſmalleſt irritating Cauſe will induce a Fit in ſuch as are ſubject to it, and ſuch ought to be prevented with great Care.

There is no Diſeaſe which infeſts Mankind more terrible in its Symptoms and Effects, the worſt of which are a weakening and perhaps an Abolition

bolition of the Faculties of the Mind; whether the Cauſe of the Diſeaſe be in the Brain, is eaſily known from the concomitant Symptoms.

The Intentions in the Cure of the Diſeaſe muſt be different, according to the Cauſe; Bleeding, and plentiful Evacuations, when there is a Plethora or inflammatory Diſpoſition in the Brain; Aliments without Acrimony, demulcent, avoiding every thing which ſtimulates, taking ſuch things as are oppoſite to the particular Acrimony which cauſeth the Diſeaſe, relaxing the Belly without irritating; in acute and periodical Pains, anodyne Subſtances; if the Diſeaſe is the Conſequence of an hyſterical Diſpoſition, a warmer Regimen is neceſſary; if the Cauſe is in the Stomach, generally anti-acid Subſtances relieve; if they are not flatulent, ſeveral have been cur'd by a Milk-Diet, but it will do hurt when there is Acidity in the Stomach; when the irritating Cauſe is in ſome outward Part of the Body, it is proper to eradicate it by Suppuration.

The common Cuſtom of applying ſtimulating things, as volatile Salts and Spirits to the Noſe, during the Fit, is generally ſpeaking pernicious.

Epilepticks ought to breathe a pure Air, unaffected with any Steams, even ſuch as are very fragrant. Their Diet ought to be nouriſhing, of eaſy Digeſtion, avoiding Hogs Fleſh, Water-Fowl, and all Vegetables that are pungent, windy, and generally ſpeaking all Fruits, eſpecially Nuts; with little Wine, and none, if they have not been accuſtom'd to it; they ought not to turn round, nor ſtand on Precipices, to keep regular Hours for Repaſt and Sleep, for every unuſual thing is a Stimulus; but of all things the moſt neceſſary is the avoiding the Occaſions of violent

Paſſions, and keeping themſelves chearful.

Melancholy, Madneſs.

The Conſtitution which diſpoſeth to ſuch a State, the Cauſes, Symptoms and proper Regimen in it is deſcrib'd *Chap.* II.

This being a Diſeaſe more terrible than Death, extremely obſtinate, invading ſometimes by inſenſible degrees, and hard to be cur'd when it has taken place, the Approaches towards it ought to be carefully obſerv'd.

Theſe are commonly obſtinate Watchfulneſs, or ſhort Sleeps, troubleſome and terrible Dreams, great Solicitude and Anxiety of Mind, with Sighing, ſudden Fits of Anger without any Occaſion given, Love of Solitude, Obſtinacy in defending trifling Opinions, and Contempt of ſuch as are about them, Suppreſſion of uſual Evacuations, as of the Menſes in Women, and Hæmorroids in Men; great Heat, Eyes hollow and fix'd, immoderate Laughter or Crying without occaſion; too great Loquacity, and too great Taciturnity, by Fits; great Attention to one Object, all theſe Symptoms without a Fever.

When this Diſeaſe is hereditary it is ſeldom cur'd.

The atrabilarian Conſtitution, or a black viſcuous pitchy Conſiſtence of the Fluids which moſt frequently occaſions this Diſeaſe, makes all Secretions difficult and ſparing; the Intention therefore ought to be to render the Humours fluid, moveable, and carry them out of the Body, eſpecially the Bile, which is viſcous; Sudorificks indeed are not ſo proper, becauſe they thicken.

To uſe the Aliment preſcrib'd *Chap.* II. in atrabilarian Conſtitutions.

Boerhaave gives an Inſtance of a Patient who by a long uſe of Whey, Water, and Garden-Fruits, evacuated a great Quantity of black Matter, and recovered his Senſes. Cold Bath, and eſpecially a ſudden Immerſion in the Sea, has done good by acting upon the Nerves and Spirits; whereever there is any Uneaſineſs or Senſation of Pain, one ought to ſolicit the Humours towards that Part, or to make the proper Evacuations from them, eſpecially (if it be poſſible) to procure the Piles, which ſeldom miſs to relieve the Head.

The Madneſs which proceds from a Plethora, or too great Fulneſs, is cur'd by plentiful Bleeding and Purging.

The Weakneſs which ſucceeds the Madneſs requires a more refreſhing and warm Diet, eſpecially the uſe of Chalybeat Waters.

Scurvy.

This is a Diſeaſe impoſſible to be defin'd by Words containing any ſimple or diſtinct Idea; it is rather a Name us'd to denote a Multitude of Symptoms, different, and ſometimes oppoſite in their Cauſes and Cures.

It is a Diſtemper of the Inhabitants of cold Countries, and amongſt thoſe, ſuch as inhabit marſhy, fat, low, moiſt Soils, near ſtagnating Water, freſh or Salt; invading chiefly in the Winter ſuch as are Sedentary, or live upon ſalted and ſmoaked Fleſh and Fiſh, or Quantities of unfermented farinaceous Vegetables, and drink bad Water; ſuch as are Hypochondriacal and Hyſterick; and ſometimes ſuch as have taken the Peruvian Bark, either in great Quantities, or without proper Evacuations. From theſe Cauſes the beſt Rules are taken for Prevention.

Its Symptoms are a ſpontaneous Laſſitude or Senſation of Wearineſs, being unrefreſh'd by Sleep, laborious Breathing upon ſmall Motion, cold Tumours in the Legs going off and returning; ſometime Paleneſs, or a livid Colour of the Countenance; Spots on the Skin of various Colours, red, violet-colour'd, yellow, livid; ſometimes an ill Smell in the Mouth, painful and bleeding Eroſions of the Gums, and by theſe the Teeth growing bare and looſe; Hæmorrages of all kinds, Ulcers untractable, eſpecially in the Legs, with a gangrenous Appearance in the Skin; the Itch; a dry cruſty Eruption, and ſometimes a ſmall degree of Leproſy in the Skin; the Blood, when let, black, grumous, the red part without a due Conſiſtence; the Serum ſaline, and of a yellowiſh Green; wandering Pains in the Limbs, increaſing by the Warmth of the Bed, ſometimes a feveriſh Heat.

Theſe Symptoms proceed from an ill Temperature of the Blood, too thick or too thin, being of a ſaline Conſtitution, either from an acid, alkaline, or muriatick Cauſe, and according to the Cauſe, demands very different and oftentimes oppoſite Remedies. *See* Part Firſt, of acid and alkaline Conſtitutions.

The Scurvy of Mariners is generally cured by Acids, as all ſorts of ripe Fruits, Limons, Oranges, Butter-Milk; alkaline Spirits hurt them; and acid Spirits, as that of Salt, does them good; when the Symptoms are attended with a Fœtor of any kind, either in the Urine, Mouth, Breath, with Drought, Heat, Hæmorrhage of the Gums, or of any kind, ſuch a Diſeaſe will be cur'd by aceſcent Subſtances, and none better than Whey: In this Scurvy Chalybeat Waters are generally effectual.

If the Scurvy be entirely muriatick, proceeding from a Diet of ſalt Fleſh or Fiſh, the Vegetables commonly called Antiſcorbutick, as Water-creſſes, Scurvy-Graſs, and Brook-Lime may be given with Succeſs, but tempered with Acids, as the Juice of Oranges and Limons: And the Pot-Herbs which are antiacid in this Caſe are a proper Diet; but if there be a high degree of Heat and Inflammation, the hot Antiſcorbuticks will do hurt.

If the Patient be pale, cool, without Thirſt, with pale or natural colour'd Urine, with a previous Diet of aceſcent Subſtances, the Eruptions not of a high inflammatory or livid Colour, the warm Antiſcorbuticks, animal Diet, and animal Salts, are proper.

There is great Attention to be given to the Condition of the Mouth, Gums, and Teeth, in the Scurvy, from which the Nature and

Degree of the Diſeaſe may be gueſs'd at.

Violent Purging always hurts ſcorbutick Conſtitutions; lenitive Subſtances relieve.

Bleeding is not proper, unleſs where the Symptoms are urgent, and the Caſe is inflammatory.

A Scurvy, from an alkaline Cauſe is more dangerous than from an Acid.

Cachexy, or ill Habit of Body.

This is likewiſe a general Word to expreſs a great Variety of Symptoms; moſt commonly it denotes ſuch a Diſtemperature of the Humours as hinders Nutrition, and weakens the vital and animal Functions, proceeding from Weakneſs of the Fibres, and an Abuſe of the Non-naturals, and often from ſevere acute Diſtempers: It ſometimes diſpoſeth to Conſumptions, ſometimes to Leucophlegmacy,

cophlegmacy, Bloatedneſs, and Dropſies; it is attended often with Palpitations of the Heart. The Rules for Diet muſt be drawn from the Symptoms. *See* Chap. I. of this Part.

Conſumption pulmonary.

This Diſeaſe is a Decay of the whole Body, from an Ulcer of the Lungs, the Matter of which is mix'd, circulates with, and infects the Blood, and by its Acrimony infects the whole Maſs of the Fluids.

This Diſeaſe makes up above a tenth part of all the *Bills of Mortality* about *London*, is often the Product of a ſcrophulous Conſtitution, or King's-Evil, ſeldom invades after Thirty Years of Age, may be prevented, but ſeldom admits of any other than a palliative Cure, and is generally incurable when hereditary, but eaſily ſo when it proceeds from an accidental Cauſe.

It is often preceded by a Spitting of Blood, occaſion'd by its Acrimony, and too great a projectile Motion, with Slenderneſs and Weakneſs of the Veſſels; to which Perſons of a fair roſy Complexion, long Neck, and narrow Cheſt, are often ſubject; Aliment too viſcous, obſtructing the Glands, and by its Acrimony corroding the ſmall Veſſels of the Lungs (an Organ of a ſlender Texture, through which the Half of the whole Blood paſſeth, and which is never at reſt) after a Rupture and Extravaſation of Blood, eaſily producing an Ulcer, then a ſmall Fever, dry Cough, Heat, Fluſhing after Repaſt; when the new Chyle enters the Lungs, ſhort Breath, a Diſpoſition to Sweat after Sleep; all theſe Symptoms, when the Blood is moſt copious and hot, between the Ages of 16 and 30; ſuch a Diſeaſe may be induc'd by the Suppreſſion of Evacuations natural and artificial, by any great

Force upon the Lungs, from ſome accidental Cauſe; by too hot, full, and acrimonious Meat or Drink, by ſome acute Diſeaſe, the Meazles or Small-Pox.

The Blood is ejected from the Lungs with ſome ſmall Pain, Heat, Oppreſſion on the Breaſt, florid, and frothing, with ſhort Breathing, and a ſmall ſoft quick Pulſe.

If after ſuch Hæmorrhage from the Lungs, the Symptoms increaſe, Shortneſs of Breath, Fluſhing in the Face, a Cough, hectick Fever, but eſpecially Rigours and Chillineſs invading irregularly, with Weakneſs, one may be ſure that there is a Suppuration.

In a Hæmorrhage from the Lungs, no Remedy ſo proper as Bleeding, often repeated; Stypticks are often inſignificant, and if it were poſſible that they could operate immediately upon the affected Part, ſo far as to make a Scar, when that fell off the Diſeaſe would return. Both incraſſating and ſtyptick Subſtances work univerſally, but they would hurt the Lungs if given before the Veſſels are empty'd. Balſamick Subſtances often hurt by their too great Heat.

The Intention here is by Diet to abate the Acrimony and projectile Motion of the Blood, after repeated Bleeding; to keep ſtrictly to a Milk Diet, with farinaceous Subſtances, as Rice and Barley, Milk with roaſted Apples, Jelly of Currants, or the Jelly of any ripe ſubacid Fruit, which is cooling, and very agreeable to the Stomach; Milk and common Water, or Barley-Water, for Drink, taking the Aliment frequently, and in very ſmall Quantities, for fear of charging the Lungs with too great a Quantity of Chyle at a time. (*See Part* I. *Chap*. II.) Avoiding all violent Motion, or any thing that puts the Lungs upon a Stretch. Acrimony is likewiſe corrected by oily Vegetables, not ſuch as contain a volatile or high exalted Oil, but thoſe whoſe Oil is mild, as Almonds, Piſtachos, Dates, *&c.*

The *Engliſh* Conſumptions, generally ſpeaking, proceed from a ſcrophulous Diſpoſition; in the firſt Acceſs of ſuch a Diſeaſe any Subſtance which is deobſtruent, without much Acrimony, is beneficial, but what heats diſpoſeth to Suppuration.

There is likewiſe a Conſumption from an Empyema, after an Inflammation of the Lungs, which may be known from a Weight upon the Diaphragm, Oppreſſion of the Lungs, a difficulty of Breathing, and Inability to lie on one Side (which is that which is ſound) a perpetual Cough and Fever, with Thirſt, Fluſhing of the Cheeks, Weakneſs, and Decay of Appetite.

The Cure of ſuch a Caſe is chirurgical, by opening the Side; if the

Ulcer is not broke, it is commonly called a Vomica, attended with almoſt the ſame Symptoms as an Empyema, becauſe the Vomica communicating with the Veſſels of the Lungs muſt neceſſarily void ſome of the putrid Matter into theſe Veſſels, and taint the Blood.

The Ulcer may break ſuddenly into the Larynx, with the danger of Suffocation; or inwardly, and the Matter may by degrees be expectorated. The Event of the Diſeaſe depends upon the Symptoms, eſpecially the Nature of the Pus; that which ſwims in Water, without any ill Smell, is better than what ſinks, is livid, and ſmells of putrify'd Fleſh.

There may be a Conſumption with a purulent Spitting, when the Vomica is contain'd in a Cyſt or Bag, upon the breaking of which the Patient is commonly ſuffocated.

In this Caſe the ſame Intentions muſt be purſued in the Diet, as in a Wound or any other Ulcer. The Aliment cool, demulcent, vulnerary, and not drying or hot, but conſiſting of Quantities of liquid things, even though they provoke Sweat. It is a common Miſtake that acid things hurt the Lungs. The Gas Sulphuris may be given with Succeſs in any Diſeaſe of the Lungs, but at ſome diſtance of Time from Milk, Vinegar, and Honey, is proper and detergent; anodyne Subſtances relieve the Cough; gentle Exerciſe by Riding, is beneficial; by an extremely exact Regimen a conſumptive Perſon may hold out for Years, if the Symptoms are not violent.

The Sweats and Diarrhœa attending Conſumptions are generally fatal Symptoms, but muſt be reliev'd by a Diet proper in theſe Caſes, not interfering with what is formerly adviſ'd.

Conſumptions are induc'd by Purulency in any of the other Viſcera; the Regimen muſt be very near the ſame as in the Pulmonary.

Dropſy.

This Diſeaſe is commonly an Extravaſation of Serum receiv'd in ſome Cavity of the Body; I ſay commonly, for there may be a Dropſy by a Dilatation of the ſerous Veſſels, as that in the Ovarium, wherein the very Membrane of the Ovum is extended with the Water, and at the ſame time thickened ſo as to keep it from Rupture.

Therefore this Diſeaſe may happen wherever there are ſerous Veſſels; a Hydrocephalous, or Dropſy of the Head, which is only incurable when the Serum is extravaſated into the Ventricles of the Brain, and generally fatal in Infants, when the Sutures are clos'd, and the Skull will yield no more.

A Dropſy of the Breaſt is attended with almoſt the ſame Symptoms as an Empyema, and cur'd by the ſame Chirurgery.

A Dropſy of the Lungs, either by Hydatides, or by Lymph, extravaſated in the Body of the Lungs.

A Dropſy in the Forepart of the Windpipe, emulating a Bronchocele.

A Dropſy in the Ovarium, *Teſtes*, *Scrotum*, or *Uterus*.

An Aſcites, or Collection of Water in the Abdomen. 1. In the Duplicature of the Peritonæum. 2. Between the Peritonæum and the Bowels. 3. When the Water is contained in the membranaceous Coat of the Glands.

Sometimes the Air is ſo rarify'd in the Tumour as makes it hard and tight like a Drum, and from thence it is call'd a Tympany; when the Tenſion is from Air, it is eaſily diſtinguiſh'd by the Specifick Gravity of the Patient, and ſo is Water.

When the Lymph ſtagnates, or is extravaſated under the Skin, it is called an Anaſarka.

Whatever hinders the Return of the Lymph into the Veins, or breaks the lymphatick Veſſels, or obſtructs the abſorbent Veſſels, ſo as the Lymph cannot be abſorb'd or exhal'd, produceth a Dropſy: Any Stoppage of the Circulation will produce a Dropſy, as by ſtrong Ligature, or Compreſſion.

The moſt common of theſe Cauſes are an hereditary Diſpoſition; ſwilling down great Quantities of cold watery Liquors, which are not voided; violent acute Diſtempers; ſtubborn Obſtructions of the Viſcera; the Jaundice, obſtinate intermitting Fevers, Bloody-Fluxes; great Evacuations, eſpecially of Blood; Aliment viſcous and of hard Digeſtion; inveterate Scurvies; but the moſt common of all is the habitual and copious Uſe of fermented and ſpirituous Liquors.

The Effects are a Swelling of the Legs at Night by degrees, ſtill aſcending higher; a Swelling of the Belly increaſing; and in a Tympany ſounding and tenſe like a Drum; ſometimes the Senſation and Noiſe of fluctuating Water, Shortneſs of Breath, Thirſt, Urine in too ſmall Quantity, no Sweat; The ſtagnating Serum at laſt turning acrimonious, exulcerates and putrifies the Bowels, producing moſt diſmal Symptoms.

The beſt Cautions and Rules of Diet may be taken from the Enumeration of theſe Cauſes and Effects.

The Intentions to be purſued are, removing the Cauſes, as Obſtructions,

ſtructions, diſſolving the Viſcoſity or Tenacity of the Lymph, and evacuating it out of the Body.

The Viſcoſity of the Lymph is beſt corrected by ſuch Subſtances as contain abundance of alkaline and volatile Salts, Spices, acrimonious pungent Vegetables, ſaponaceous Subſtances; what they are the Reader may ſee Chap. I. of this Part.

The only Contradiction to this is too great Heat and Thirſt, to which Regard is to be had, and do indicate the Uſe of Acids, Juice of Limons, Oranges, Sorrel, *&c.* I think it may be taken for a general Rule, when the Urine is high-colour'd, that Acids are proper, for they are oppoſite to that alkaleſcent State of the Humours, and reſiſt the Putrefaction, which is the Effect of acrimonious Serum.

The Drink ſhould be ſparing; but foraſmuch as the Thirſt is ſometimes intolerable, the Patient may be indulg'd dulg'd the free Uſe of Spaw-Water and Rheniſh Wine.

The Aliment ſhould be dry, diuretick. *See Chap.* I. Diureticks of the acid Kind are the ſafeſt.

The Chirurgical Operations for drawing off the Waters are to be left to the Judgment of the Phyſician.

Nothing is more beneficial than ſtrong Frictions of the Skin, which attenuate and promote the Circulation of the ſtagnating Serum.

Vomiting, in ſtrong Conſtitutions, has prov'd often very effectual, for the Concuſſion of the ſolid Parts diſſolves and diſpels the ſtagnating Humours; and even Clyſters of proper Ingredients are very beneficial.

Violent Purgers, by diſſolving the Blood, have prov'd often pernicious.

Many have been cur'd by Abſtinence from Drink, eating dry Biſcuit, which creates no Thirſt, and ſtrong Frictions four or five times a Day.

When the extravaſated Serum is evacuated, the Diet ought to be ſuch as ſtrengthens the ſolid Parts, allowing Spices and generous Wine, and eſpecially the Uſe of Chalybeat Waters, Abſtinence from other Sorts of Liquids, dry Food and Vegetables aſtringent, Exerciſe, eſpecially Riding; and in general, ſuch a Diet as generates good Blood.

If the Serum ſtagnates long, it turns acrimonious, and commonly renders the Patient feveriſh and thirſty. Acid or ſour things are the propereſt both to prevent and cure theſe Symptoms, as they are oppoſite to that alkaline Putrefaction.

Gout.

This is a Diſeaſe which may affect any membranous Part, but commonly thoſe which are at the greateſt

Diſtance from the Heart or the Brain, where the Motion of the Fluids is the ſloweſt, the Reſiſtance, Friction, and Stricture of the ſolid Parts the greateſt, and the Senſation of Pain by the Obſtruction of the ſmall Veſſels and Dilaceration of the nervous Fibres extreme.

The moſt common Seat of it is in the Foot, its Tendons, Nerves, Membranes, Ligaments, and Perioſtea, or Membranes inveſting the Bones.

The moſt common Cauſes of it are an hereditary Diſpoſition (which operates more ſtrongly in this Diſeaſe than in any other) a too rich and high Diet, and too copious Uſe of Wine and other ſpirituous Liquors, eſpecially at Supper; Exceſs in ſome other Pleaſures; a full groſs Habit of Body; the too copious uſe of acid or ſour things, the Gout being the only Diſeaſe in which they are very hurtful to Human Bodies; a ſudden chilling of the Feet after Sweat, or drying them at the Fire after being wet and cold; a ſedentary Life, with a plentiful Diet, and intenſe Study, and Application of the Mind; moſt commonly a Gouty Conſtitution is attended with great Acuteneſs of Parts, the nervous Fibres both in the Brain and the other Extremities being delicate; and there are Inſtances where Wives have got it from their Husbands by Infection, ſo *Boerhaave* ſays; Females and young People are not ſubject to this Diſeaſe, unleſs where it is hereditary.

A proper Regimen of Diet is neceſſary in this Diſtemper, becauſe it does not admit of very many Helps from Medicines, and there are no better Rules than Abſtinence from thoſe things which occaſion it.

It ſeems to be a Diſeaſe of the nervous Parts, which makes it ſo hard to cure; Diſeaſes are ſo as they are more remote in the Thread of the

Motion of the Fluids, by the conſtant and regular Returns of it in ſome People, and their Freedom from it after the Morbid Matter is exhauſted; it looks as there were regular Accumulations and Gatherings of it, as of other Humours in the Body, growing perhaps in ſome People as Corns.

As one of the Cauſes of the Gout is the Suppreſſion of Sweat and Perſpiration, the procuring a due degree of theſe ſeems to be the beſt Preventive of it; if the Feet could be made to ſweat, in due time it would prevent the Gout, which invades in ſuch Conſtitutions of the Air as ſuppreſs Perſpiration.

Violent Purging, in Abſence of the Paroxyſm, by agitating the Humours often hurts, and during the Paroxyſm, may draw the Gout inwardly.

The beſt Diet is Abſtinence from acid Subſtances; the moderate uſe of ſuch as promote Perſpiration, as Subſtances aromatical, and volatile Salts, which relieve the Gouty, as they make the Body perſpirable; diluent Liquors, taken in ſuch a degree as not to hurt the Stomach; Moderation in the Quantity of Food and ſpirituous Liquors; Exerciſe without Fatigue; but eſpecially Frictions of the extreme Parts, daily, and often repeated; all poſſible Methods of making the Feet ſweat, and much Sleep.

In the Paroxyſm, as temperate and cool, and diluent a Diet as the Patient can bear; Abſtinence from Opiates, except when the morbid Matter is ſeparating (by Opiates any Irruption goes on better) the conſtant Uſe of them will hurt; keeping the affected Part warm, without the Application of Cataplaſms, ev'n ſuch as are emollient, weaken and relax too much, and have been ſometimes found to diſtort the Parts.

It is of the utmoſt Importance to know if any Diſeaſe proceeds from a Tranſlation of the Gouty Matter; for the Methods, eſpecially Evacuations, us'd in an original Diſeaſe, would be very improper in a Gouty Caſe, where the Intention muſt be to draw the Gout down to the Feet, by Bliſters apply'd to the Thighs or Legs, and acrid inflammatory Cataplaſms and Plaiſters; therefore when any Gouty Perſon is diſappointed of a Paroxyſm which he expected by the Seaſon, or the previous Symptoms, and inſtead of it is ſeiz'd with another Diſeaſe, let him ſpeedily conſult his Phyſician.

If a Gouty Perſon can bring himſelf intirely to a Milk Diet, he may ſo change the whole Juices of his Body as to eradicate the Diſtemper.

The Approach of a Fit of the Gout is eaſily known by the inward Diſorders, as Wind, Sickneſs, Crudities in the Stomach, a Drowſineſs, theſe join'd with the Seaſon or Weather, if ſuch a one by a ſtatical Engine could regulate his inſenſible Perſpiration, he might often by reſtoring of that, foreſee, prevent, or ſhorten his Fit.

Greenſickneſs, Obſtructions.

The Symptoms of this Diſeaſe are evident, a due Age of the Patient, with an Obſtruction of the Menſes, a Fulneſs, ſometimes Pains about the Loins, a Lazineſs, Inactivity, which is both the Cauſe and Symptom of the Diſeaſe; a quick Pulſe, often emulating that of a hectick Fever, Palpitation of the Heart, Difficulty of Breathing upon the leaſt Motion, a livid Circle about the Eyes, Dizineſs of the Head, ſometimes an Appetite of odd things, as Chalk, Tobacco-Pipes, proceeding from an Acidity in the Stomach, a Paleneſs of the Face and Skin, unnatural Hæmorrages from the Mouth, Noſe, and other Parts, hyſterical Symptoms.

Young Perſons under a womanly Age are often troubled with ſome of the ſame Symptoms, but not from that Cauſe; and Women obſtructed have not always the forementioned Symptoms; in thoſe, the Signs of Gravidity and Obſtructions are hard to be diſtinguiſh'd in the beginning.

This Diſeaſe is the Parent of many other dangerous Diſeaſes, and after ſix Months hardly to be cur'd.

What is to be conſider'd in this Caſe, is chiefly, if there be a ſufficient Fulneſs or Deficiency of Blood, different Methods are to be taken, in thoſe two Caſes, Bleeding, which may relieve in the firſt Caſe, will do hurt in the Second Motion; Exerciſe, Frictions, Bathings, Clyſters, Fu-

Fumigations often repeated are very beneficial.

Subſtances abounding with volatile oily Salts, Subſtances ſaponaceous, aromatical, as thoſe Vegetables which abound with a volatile Oil.

When there is not a ſufficient Plethora, a Diet wholeſome, plentiful, and nouriſhing, at the ſame time ſtrengthening the Organs of Digeſtion, is often effectual.

After Relaxing, ſuch Subſtances as ſtrengthen the ſolid Parts in general, are beneficial; it is by this Quality that Steel operates ſo ſtrongly in this Diſtemper, and likewiſe as being an Antiacid. *See* Chap. I. Nº 18.

A Woman, who by ſome unuſual Hæmorrage has that natural Defect ſupply'd, is only to be cur'd by topical Remedies.

Diſeaſes of Infants.

Infants new-born, before they have taken any Aliment, often have the whole alimentary Duct filled with a glutinous cheeſy Matter, and all of them have a Meconium, or ſort of dark-colour'd Excrement in the Bowels, which ought to be purg'd off.

Moſt of the Diſeaſes of ſuckling Infants proceed from Milk growing ſour and curdling in the Stomach; the Cure of which is to be effected, *Firſt*, By attenuating this curdy Matter; and *Secondly*, by expelling it out of the Body; it may be digeſted by the Infant by Abſtinence from Sucking for ſeveral Hours; Honey and Water, with a little Wine, attenuate and diſſolve; and ſome gentle purging Syrup, as Syrup of Cichory with Rhubarb, expels the peccant Matter; oily Subſtances are apt to turn rancid on the Stomachs of Infants; Clyſters and warm Fomentations, and other Applications of aromatical Subſtances to the Stomach and Belly, are uſeful in this Caſe.

Antiacids, eſpecially the Abſorbents, are more effectual in the Diſeaſes of Infants than in any other.

Opiates and anodyne Subſtances are dangerous.

Volatile Salts are hurtful to Infants, being too active, and operate ſometimes as Opiates.

Gall is the greateſt Reſolvent of curdled Milk; *Boerhaave* has given at a time one Drop of the Gall of an Eel with Succeſs.

Gentle Carminatives, as Fennel-Water, Mint-Water, relieve.

The Colick, green Stools, Vomiting, Wind, and Convulſions, all depend upon this Acidity, and when that is rectify'd the Symptoms ceaſe.

Diſeaſes of Infants, and the Cure of them, depend very much upon the Diet of the Nurſe. *See* Part I. Page 93.

When Children begin to feed upon Subſtances on which Inſects depoſite their Eggs, eſpecially Fruits, they are often troubled with Worms, for want of a ſufficient Force of Digeſtion to deſtroy theſe Eggs.

The moſt common Sort in Children are the round or Earth-Worms.

The Symptoms occaſion'd by the Motion and Biting of theſe Worms are Loathing as it were from a Feather in the Throat, a Vomiting, Looſeneſs, Fainting, a feveriſh Diſpoſition, with a ſmall quick Pulſe, Itching of the Noſe, Grinding of the Teeth, Fits, Paleneſs, a craving Appetite, Weakneſs, and when the Worms are large they conſume the

Moiſture, and inſtead of Looſeneſs will occaſion Aſtriction of the Belly, with a Swelling; Worms will perforate the Guts.

Children ſubject to Worms ought not to live much upon Milk, Cheeſe, or ripe Fruits, nor take much Sugar; ſome Inſects lay their Eggs in Sugar.

The Gall of Animals, and Mercury, kill Worms, and deſtroy their Neſts; it is found by Experience that the Water in which Mercury is boil'd has this Effect; all Bitters among alimentary Subſtances; Honey and Oil given by the Mouth, or Clyſters, have a good Effect; they may be taken together faſting; any Subſtance which by its Pungency can wound the Worms, will kill them, as Steel, Hartſhorn, Coraline, Coral powdered, Fiſh Bones. *See* Chap. I.

Above a tenth Part of Infants die in Teething, by Symptoms proceeding from the Irritation of the tender nervous Parts of the Jaws, occaſioning Inflammations, Fevers, Convulſions, Looſeneſs, with green Stools (not the worſt Symptom) and in ſome, Gangrenes: It is plain that ſuch a Caſe ought to be treated as any other inflammatory Diſtemper.

When the Symptoms of Teething appear, the Gums ought to be relax'd by ſoftening Ointment, the Jaws fomented with emollient Decoctions, and the whole Head to be kept warm; when the Teeth is ready to cut, the upper Part rubb'd with hard Subſtances, which Infants by a natural Inſtinct affect, and when there is a manifeſt Tenſion of the Gum by the Tooth, then it ought to be cut; but this Operation ought not to be perform'd too ſoon.

In the Convulſions it is neceſſary to give volatile Spirits, which they can bear better than when they are new-born.

The Rickets is another Diſeaſe to which Children are ſubject: It has been reckoned a Diſeaſe unknown to the Ancients, uncommon in hot Countries, and more common in *England* than any other Northern Country.

Children have this Diſeaſe from ſickly Parents, and eſpecially from Mothers of a weak lax Conſtitution, living on a various, high, and plentiful Diet, without Exerciſe; and Children born healthy, often contract the Diſeaſe from an unwholſom Nurſe.

A Diet of farinaceous Subſtances infermented, as of Pudding, much Butter, wet or ill-air'd Linen, cutaneous Eruptions repell'd, or ill cur'd, expoſing their lower Parts too long to cold Air, may bring, or at leaſt increaſe this Diſeaſe.

The Diſeaſe may be foreſeen by the Child's being long in taking to his Feet; when it takes place the Child grows lean, the muſcular Fleſh decays, and grows flabby, the Skin looſe and flaccid, the Epiphyſes of the Bones about the Joints of the Arms grow big, the Belly ſwells, the Blood-Veſſels about the Neck enlarge, and ſo does the Head it ſelf, the Bones grow crooked; theſe are the outward Appearances, the Conſtitution of the inward Parts is often much worſe.

It is highly probable that this Diſeaſe proceeds from a redundant Acidity, becauſe Vinegar will ſoften and crook tender Bones; and this Symptom muſt happen in Children when there is no Strength in the Muſcles to ſupport them, or they muſt be inflected to that Side where the

Muſcle pulls ſtrongeſt. Contrary to the common Rules for the Aliment of Children, the Diet of thoſe that are Rickety ought to be moderately warm, even making uſe of Spices or carminative Seeds. They ought to forbear unfermented farinaceous Subſtances, new Bread; and rather uſe Biſcuit. Their Diet ſhould be pretty much of fleſh Meat, ſuch as are commonly call'd White Meats, and rather roaſted than boil'd, ſuch Diet being anti-acid. They may be allow'd a moderate Quantity of Wine.

I knew a rickety Child cur'd by a very great Indulgence of fermented Liquors, but it is not an Experiment that I would adviſe.

Frictions of the Back-bone and Joints with Flannel, ſmoak'd with penetrating aromatical Subſtances, and fomenting the Joints with old Malaga Wine, have prov'd often very effectual.

They ought to uſe as much Exerciſe as they are capable of, but eſpecially by Voiture or Carriage. Care muſt be taken to open the Obſtructions in the lower Belly by Vomits and proper Purgations, where the Seat of the Diſeaſe chiefly lies, and after that the Cold Bath is a very proper and effectual Remedy.

I have lanch'd out of my Subject under this Head, mentioning ſome medicinal Helps, becauſe the Nurſes in ſuch Caſes are often the Phyſicians, which nevertheleſs they ought not to be when they can get better Advice.

Small-Pox.

Though I took notice of this Diſeaſe in the Article of Feveriſh Irruptions, yet it being one of the moſt dangerous and univerſal that infeſts Mankind, I ſhall add a few more Rules which may be of uſe to ſuch as have not the Advice of an able Phyſician.

The greateſt and moſt important Strokes for the Recovery of the Patient, muſt be made at the time of the Invaſion, or firſt State of this Diſeaſe; therefore it is neceſſary to know the firſt Symptoms of it; many have ſuffer'd by miſtaking it for another Diſeaſe.

In general, young Perſons who have not had the Diſeaſe ought to be extremely careful to avoid great Irregularities in their Diet, becauſe the Small-pox which are occaſion'd by ſuch, often prove dangerous. This Diſeaſe is likewiſe more dangerous as the Fluids are more exalted and diſſipated, and the Solids more ſtrict and compacted, and conſequently more ſo as People are advanc'd in Age.

This Diſeaſe may be eaſily communicated by the Contagion or Steams of an infected Perſon ſwimming in the Air, and drawn in by the Breath, or perhaps by the Pores of the Skin; and it is evident by Inoculation that the ſmalleſt Quantity of the Matter mix'd with the Blood produceth the Diſeaſe, tho' not ſo quickly as thoſe volatile Steams.

The firſt Symptoms are a Chilneſs, Rigor, ſucceeded by a Fever and conſtant Heat, a certain Splendor or Shining in the Eyes, with a little moiſture; this is very obſervable in Children; a great Pain in the Head, with Dulneſs, Drowſineſs, Sleepineſs, a Pain in the Back in ſome, but Pains in the Limbs in all, Anxiety, Inquietude, notwithſtanding their Drowſineſs, Loathing, Sickneſs of the Stomach, Vomiting, and in Infants Convulſions ſhortly before the Eruption. The Blood let the firſt time, florid; after a ſecond time ſizy.

It is evident that in this State the Diſeaſe ought to be treated as any other inflammatory Diſtemper, by ſuch Methods as if it were poſſible to hinder any Suppuration at all, and to reſolve and digeſt as much of the feveriſh Matter as we can; for the longer the Eruption is a coming, and the ſmaller when it comes, the Diſeaſe is leſs dangerous; therefore all the Methods practis'd in the beginning of inflammatory Diſeaſes are here neceſſary, with a particular Care of cleanſing the alimentary Duct by Vomiting and Clyſters, the Impurities of which will be carried into the Blood.

There is not yet found any particular Antidote to the poiſonous Stimulus of this Diſtemper; the learned *Boerhaave* is of opinion, that if any ſuch could be found, it muſt be in Antimony, or Mercury intirely deſtitute of all Acrimony: The Effects of Mercury on all Ulcerations are very manifeſt.

Bleeding, which is extremely uſeful in the beginning of the Diſeaſe, is not ſo proper and uſeful when it is advanc'd.

In the firſt Stage the whole Habit of the Body ought to be relax'd, a free Perſpiration thro' the Skin, without violent Sweating, promoted; the Viſcoſity or Toughneſs of the Fluids taken off by diluents; the alkaleſcent State of the Salts corrected; all theſe things are effected by emollient Fomentations apply'd inwardly in Clyſters, and why not outwardly to the Skin? Such are us'd ſucceſsfully in other Eruptions, as Eryſipelas, Shingles, by a ſlender Diet of Decoctions of farinaceous Vegetables, and copious drinking of cooling Liquors, with nitrous and acid Salts, and other acid Subſtances, mix'd with them; no Fleſh, unleſs it be ſmall Chicken-Broth; no Spice; the Air ought not to be ſpoil'd by Heat, nor the Coverings of the Bed ſo thick as to promote Sweat.

The Greatneſs and Danger of this Diſeaſe is eſtimated by the Quantity of Eruptions on the Face and other Parts of the Head; therefore the Matter ought to be ſolicited by all poſſible Methods to the lower Parts, eſpecially the Legs, by Fomentations, Bathing, Epiſpaſticks, Bliſtering, and through the whole Diſeaſe keeping the Feet and Legs warm; the Breaſt and Head not any more cover'd than to keep them from the Impreſſion of cold Air.

During the Filling and Ripening of the Puſtles, the Diet may be more plentiful, but ſtill not hot or in-

inflammatory, with the due Uſe of anodyne Subſtances: In this State Demulcents, or what abates Acrimony; and where the Circumſtances of the Patient require it, a Spoonful or two of Canary Wine, twice or thrice a Day, are proper: The Diet in this State ought likewiſe to be adapted to the particular Symptoms of the Diſeaſe, as cleanſing, attenuating, expectorating; to promote the Spitting, diuretick; when that is ſuppreſs'd, and Clyſters diluent, without any Stimulus, frequently injected, are beneficial in every Stage of the Diſeaſe.

When the Age, Temperament, high Pulſe, and eſpecially a Watchfulneſs and Delirium, all would ſeem to demand it in any other Caſe, why not Bleeding in this State? which I know to have been us'd with great Succeſs; a great many Veſſels are in this State almoſt impervious by the Fluids; thoſe who die of this Diſeaſe have inward Inflammations, eſpecially in the Lungs; thoſe Reaſons ſeem to juſtify Bleeding.

Indeed the gangrenous Diſpoſition which appears in the malignant Kind, is a Reaſon againſt it, but hardly any thing will do good in theſe extremely malignant Caſes.

In ſuch malignant Kinds, all that is left is at laſt to try evacuating the morbifick Matter by other ways, as Epiſpaſticks and Stools procur'd by lenitive Subſtances, not irritating, which would only agitate the Humours and increaſe the Fever.

Gravel, Stone.

A Stone or ſtony Matter may grow in any Part of a Human Body; for when any thing inſoluble ſticks in any Part of the Body, it gathers a Cruſt about it; a ſmall Drop of concreted Blood may grow to be a Stone, for by the Evaporation of the moſt fluid Parts it grows hard, and by the Attraction of new Matter increaſeth: Blood, and a Human Calculus, or Stone, yield the ſame Contents by Chymical Trial, tho' in an inverſe Order.

Theſe ſtony Concretions happen moſt commonly in the Kidneys and Bladder; and indeed if the Tartar and other Contents of the Urine were not conſtantly voided, ſuch Concretions would happen to every Human Creature; for the Urine of the moſt ſound Perſon being inſpected with a Microſcope, after it has ſtood a while, will diſcover a black Speck, which is Sand, and wherever this Sand ſticks it grows ſtill bigger, by the appoſition of new Matter: When ſuch Concretions happen in the Kidneys, and are expell'd or drop into the Ureters, it makes what we call Gravel; when they lodge and ſtick in the Body of the Kidneys, and grow to ſuch a Bulk as not to drop into the Pelvis, or paſs by the Ureters, they make the Stone in the Kidneys: The Symptoms of which are a dull Pain in the Kidney, moſt commonly bloody Water; upon a ſudden Jolt, violent Motion, Pain in Stooping; Pain in the Thigh, Sickneſs in the Stomach, Colical Pains, various Changes in the Colour of the Urine, black, bloody, pale, occaſion'd by ſomething ſharp or ſcabrous wounding the ſmall Blood-Veſſels; if the Stone is ſmooth and well bedded, perhaps this may not happen. Fleſhy Filaments, or Matter voided by Urine, are ſuſpicious Symptoms of a Stone in the Kidney, eſpecially if the Patient has been ſubject to Voiding of Gravel.

When a ſmall Stone is lodg'd in the Body of the Kidney, it does not create Pain, nor much when it falls into the Pelvis; but when it falls into the Ureter, and ſticks, the Pain is moſt acute; it often ſtops at the Flexure and Valve of the Ureter, and ſometimes in the Urethra, or Paſſage of the Urine from the Bladder; while it ſtays in the Bladder it creates no Pain, but remaining there long it grows a confirm'd Stone, too big to be paſs'd by the Urethra: The manner of its Concretion is by concentrical Rings, like an Onion, about the firſt Kernel, which ſhews the Cauſe to be Attraction. This is not only true of a ſmall Stone, but any ſolid Body lodg'd in the Bladder will make the Kernel of a Stone; the Experiment of a Bullet's producing this Effect has been try'd upon a Dog; and ſuch an Accident has happen'd to a Man by a Wound, in which a Bullet has dropt into the Bladder.

The Symptoms of a Stone in the Bladder are a Titillation about the Neck of the Bladder, and the Parts thereabout; a frequent Needing to make Water; a Senſation of Weight in the lower Belly, under the Shear-Bone, with a great Pain, eſpecially upon any ſudden Motion, which cauſeth a Concuſſion of the Bladder, a Dribling, Difficulty, and a momentary Suppreſſion of Urine by the Stone, ſhutting up the Orifice of the Bladder, attended with a Teneſmus, or needing to go to Stool, and a burning Pain in the Urethra; ſometimes a white Mucus in the Urine; tho' this laſt Symptom will happen without a Stone in the Bladder.

The Regimen in the Stone in the Kidneys is by diluent and ſoft Diureticks to try to expel it, if it is ſmall enough to paſs; if the Stone is brittle, it will often crumble and paſs in the Form of Gravel; if the Stone is too big to paſs, the beſt Method is to come to a ſort of a Compoſition or Truce with it; the Diet ought to be cool and diluent, as far as poſſible to hinder its Growth; to uſe Diureticks that gently reſolve, as Parſley, Fennel, Scorzonera, Saſſafras, Mallows, and Tea, Dandelion, Cichory, Oats, Barley, Honey, Honey and Vinegar; Nitrous Salts, as Spirit of dulcify'd Nitre; the moſt ſoft cooling Diluent of all, is Whey; the beſt Emollients are Decoctions of Marſhmallows, Linſeed-Tea.

Bathing in tepid Water, Clyſters, ſeaſoning the Aliment moderately with Sea-Salt, for the moderate Uſe of it is reſolving and diuretick; the Belly, in all Caſes of the Stone, ought to be kept lax and open.

In a confirm'd Stone of the Kidneys too violent Exerciſe is dangerous.

During the paſſing of a Stone, one ſhould avoid at firſt all ſtrong Stimulating; relaxing and lubricating the Paſſages, and quieting the Spaſms by Opiates is certainly the beſt Method; and where Bathing cannot be conveniently had, Ox-Bladders, half full of warm Water, apply'd conſtantly to the affected Part may be uſefully ſubſtituted. Letting of Blood taketh off a Tenſion better than any thing, and is very neceſſary where the Symptoms are violent; when the Parts are ſufficiently relax'd, ſtimulating Diureticks may be us'd more ſafely, eſpecially if aſſociated with Opiates.

As to Diſſolvents of the Stone; all that have hitherto been propos'd are chimerical; *Helmont* talks of Bulls Blood; Goats Blood is rather a better Diſſolvent.

The ſureſt way to hinder the Generation of a Stone, is to procure a Diarrhœa by Whey, Broth, and a liquid Diet; and indeed what would not one do to prevent ſo painful a Diſeaſe?

When the Stone is fallen to the Bladder, Care ſhould be taken to make it paſs as ſoon as poſſible, for the Reaſons above-mention'd; if all the Symptoms abate without the paſſing of the Stone, it is not certain that the Stone remains in the Bladder, becauſe a very ſmall Stone may paſs inſenſibly by Urine; if the Stone has paſs'd, it is not certain that the Fit is over, for there are often more, and the uſual Remedies ought not to be left off.

The Irritations of the Membranes of the Bladder by a Stone, may be much mitigated by the Injection of the Oil of Linſeed or Almonds, into the Bladder.

Such as are ſubject to the Gravel or Stone ought to be careful of their Diet, to uſe ſuch Aliments as generate a ſmall Quantity of Fœces, or relax the Belly; Aliment demulcent, as Peaſe; a Decoction of Chick-Peaſe is a Remedy in a Fit of the Stone; they ought to drink Whey in the Spring, and take Honey in ſeveral Forms, if it agrees with them; Rice, Barley, Millet, are all good in this Caſe; nothing makes Stones or Gravel paſs more eaſily than Opiates.

If the Stone ſticks in the Urethra, emollient Fomentation of the Parts, Oil injected, or in caſe of great Extremity, an Inſtrument with a Cavity like a ſmall Spoon, dipt in Oil, may fetch out the Stone.

The Stone in the Bladder is not only a painful, but a mortal Diſeaſe, if not extracted. The Diet of a Patient in ſuch a Caſe is ſuch as of a wounded Perſon, nouriſhing, without Acrimony.

Let the Reader look into the Article of Inflammations of the Kidneys, where there are ſome Directions proper for all who are ſubject to the Stone or Gravel.

Rheumatiſm.

The Diſeaſe ſeems to be an inflammatory Diſpoſition in the ſerous Part of the Blood, affecting the lymphatick Arteries, and therefore affecting thoſe Parts where the Veſſels are the narroweſt. The Blood, as in other inflammatory Caſes, is ſizy, the alkaleſcent Salts in the Serum producing coreaceous Concretions.

The common Methods us'd in this Caſe are certainly proper; theſe are, repeated Bleedings and Purges, interpoſing Anodynes, and gentle Sudorificks; and Bliſters when the Pain is obſtinate in one Part.

As for the Diet, it ought to be cool, diluting, and chiefly Vegetable.

If there be a Specifick in Aliment it is certainly Whey; I knew a Perſon ſubject to this Diſeaſe who could never be cur'd by any other Method but a Diet of Whey and Bread. A Milk Diet is likewiſe effectual for changing that ſaline Conſtitution of the Serum of the Blood.

Cream of Tartar in Water-Gruel, taken for ſeveral Days, will abate the Pains and Swellings conſiderably, by its Acidity correcting the alkaleſcent Salts in the Blood.

In obſtinate Sciatical Pains, Bliſtering and Cauteries have been found effectual, and the moſt penetrating Medicines, eſpecially the ethereal Oil of Turpentine mix'd with Honey.

I have lanch'd out of my Subject in this Article, becauſe of many common People who cannot always have good Advice.

FINIS.